

Contemporary art, archives and environmental change in the age of the Anthropocene

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**Submitted for the degree of PhD
September 2017**

Declaration of authorship

I, Bergit Arends, hereby declare that this thesis and the work presented in it is entirely my own. Where I have consulted the work of others, this is always clearly stated.

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Abstract

This thesis considers formulations of environmental change by contemporary visual artists, working primarily in Europe and North America in the period 1970s to the present. These works are situated in the context of both global environmental and artistic discourses of the 1970s and the 1990s and in relation to the present time, which is influenced by the concept of the Anthropocene. Making reference to a broad field of related artistic, curatorial and exhibition practices, the thesis examines in particular three art projects and the complexities of their conceptions, processes and displays within specific places. I describe the content, narrative forms and materiality of the works, paying particular attention to artists' engagements with the archive in the context of collaborative projects. I pursue answers to two key questions: how do visual artists' projects engage with contemporary understandings of environment and environment-human relationships? And how does the current debate on environmental change play out in the making and reading of contemporary visual artists' works?

The first section, containing three chapters, provides the theoretical and methodological context and rationale for the thesis. It sets out the analytical framework for the study of the selected artworks, methods and sources. The second section discusses three case studies: Mark Dion's project *A Yard of Jungle*, based on the 1915 field work by American scientist William Beebe in Brazil, for the United Nations Conference on Environment and Development in 1992; Chrystel Lebas' ongoing collaborative research into ecologist Edward James Salisbury's personal photographic archive of British plant habitats from the first half of the twentieth century; and the photographic book by Nguyen the Thuc *Kohle unter Magdeborn* [Coal underneath Magdeborn] (ca. 1976), documenting the impact of open-cast coal mining on a local community in the German Democratic Republic in the 1970s, which was exhibited in the Leipzig archival exhibition *Freundschaftsantiqua* [Friendship antiqua] (2014) alongside a commissioned series of photographs of the former mining site by Christiane Eisler.

The primary resources for these artists' projects are the archive and related fieldwork. In this context, the archive encompasses not only documentary materials, but also the geological archives of the Earth and the human body as archive. Fieldwork sites referenced in these projects include a variety of locations within tropical and coastal environments as well as a mining region undergoing regeneration. The thesis examines the agency of the materials these sites hold, how and to what ends they are appropriated in the process of artistic knowledge production. The structural device of montage is presented as a means of connecting heterogeneous materials drawn from different temporal and spatial contexts. Throughout, the thesis raises wider questions by situating artists' representations of environmental change in the context of debates over the ideas of ecology, environment and the Anthropocene.

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Large-format reproductions of selected images are provided in Appendix I.

Acknowledgements

My research over the past four years has taken me to many new and exciting places, geographical and intellectual. I am immensely grateful to my supervisors Felix Driver and Helen Gilbert for expanding my thinking and for their conscientious and generous commitment throughout the thesis process. I am also very thankful for the excellent guidance by my advisor Harriet Hawkins. I really enjoyed the lively discussions in the Geography department, particularly the Landscape Surgery seminars.

The research was only made possible through the time, thoughts and kindness of many, notably Mark Dion, Ute Hermanns, Katherine McLeod, Nikolaus Nessler, Madeleine Thompson, William Overal; Kath Castillo, Chrystel Lebas, Mark Spencer, Sally Weale; Julia Blume, the citizens of Magdeborn, particularly Herr und Frau Krah and Gerald Riedel, Christiane Eisler, Tobias Haupt, Erasmus Schröter, Matthew Shaul, Heidi Stecker, Helfried Strauß. My heartfelt thanks to all of you. With many thanks to the archivists and librarians at the Bronx Zoo in New York, Hochschule für Grafik und Buchkunst Leipzig, the Museu de Arte Moderna in Rio de Janeiro, Princeton University Library, the Natural History Museum London, and the Royal Botanic Gardens, Kew. Thank you to Raquel Nunes for photographing the *Arté Amazonas* documents in the MAM archive. I should also like to thank all the artists for the use of their works in this thesis, as well as Siân Ede, Danielle Olsen, Lucy Shanahan for their constructive feedback on draft chapters. Particular thanks to Michael Greenhough for his wonderfully detailed editorial comments.

My gratitude goes to Royal Holloway, University of London for making my doctoral research possible with the Reid Scholarship, and to the Social, Cultural & Historical Geography Research Group in the Geography Department and the Department of Drama, Theatre & Dance for the travel grants.

I am fortunate in having the support of my extended families and the love of my dearest Mike, Ella and Otto. This thesis is dedicated to my mother and my mother-in-law. I know how much education means to you.

1. Introduction

We are living in the Anthropocene, a new geological time unit brought into being to reflect the extensive human impact on our planet—or so it is argued by its proponents in the Earth system sciences. The Anthropocene is a charismatic idea. Its merits are now a matter for widespread debate, not just in the natural sciences but also in the social sciences, as well as in the arts.

What does the concept denote, how does the Anthropocene manifest itself and, in particular, when did it begin? These questions have been taken up in diverse ways, partly because the proposition reflects contemporary, rather than historic, geological change (Zalasiewicz et al., 2017). The Anthropocene is happening now. Critiques of the supposed epoch-scale transition inherent in the concept question both the role attributed to the human and the dualistic human-nature relation it invokes. The term has come to represent an epoch of thought, in which human co-habitation with the Earth, signs of disturbance in its system, as well as scales and distribution of environmental change in relation to human histories are debated afresh (Johnson et al., 2014). While stratigraphers seek evidence to make the formal case for a new unit in the geological timescale (Steffen, Grinevald, Crutzen, & McNeill, 2011), the Anthropocene narrative fuels wider debates on the succession and distribution of products and by-products of consumption: forms of minerals, such as glasses and plastics, as well as 'rock types', such as concrete, bricks or heterogeneous conglomerates of waste products. The by-products of changing resource uses are environmental phenomena such as climate change, ocean acidification, biodiversity loss and species migration.

Different disciplines have their own methodologies for observing environmental changes and for making them known, whether through empirical descriptions, data analysis, computational modelling or the tracing of historical relations between humans and the environment. However, there are other starting points for the investigation of the Anthropocene proposition. Contemporary art, for example, works at the intersections between the natural sciences and the social sciences in order to make the Anthropocene visible, tangible and palpable. This thesis considers contemporary art as part of a process of transforming and constructing knowledge about the world—a world in which we are submerged and

which we seek to represent (Latour, 1999). To be clear: this thesis does not offer a study of environmental change or causal understandings of environmental change, but rather of artists' engagements with and representations of environmental change. However, the studies do consider the influences of biological and economic factors that impel processes of change (such as industrialization), together with European scientific and technological advances, and cultural and material legacies of attitudes towards nature (Arnold, 1996). Moreover, artistic practices can direct, cross-reference and mediate human observations. Artists' works can position local events in relation to global changes. Artists' projects can invite us to think about future scenarios. Similarly, works can develop narratives between events by attempting to retrace steps and by comparisons.

The productive study of environmental change is by necessity interdisciplinary and collaborative. It relies on the willingness, interaction and aptitude of experts from different disciplines to learn how to observe together (Facer & Pahl, 2017), especially since it seems 'unthinkable to do good work from the premise of a methodological individualism' (Colebrook & Weinstein, 2015). This thesis considers contemporary art projects that are themselves defined by archive-based research, transformations of the archive and related fieldwork. These artistic projects experiment with processes and forms to represent the natural environment and human interventions within. The artists concerned work across disciplines linking the creative arts with the natural sciences, using photography, performance, sculpture and site-specific practices. Their interpretations are considered here as situated within the age of the Anthropocene, understood as a field of debate initiated by the arguments about global environmental change and the need for sustainable environmental management made in the early millennium by atmospheric chemist Paul Crutzen and ecologist Eugene F. Stoermer (2000; 2002).

The central questions of this thesis are: How do visual artists' projects engage with contemporary understandings of environments and environment-human relationships? And how does the current debate on environmental change play out in the making and reading of contemporary visual artists' works? I interrogate these issues by studying selected artists' engagements with the processes through which environmental changes become known to us through specific ways of working,

including scientific research, and particular forms of representation. Conceptions of environmental change are inherently historical, requiring a re-framing of relations between past and present. Furthermore, conceptual issues implied in the Anthropocene proposition are not new: they originate in the late nineteenth and early twentieth century in geology and ecology. Here the use of the term ‘anthropogenic’ (1923) by early ecologist Arthur G. Tansley, referring to environmental change induced by humans, is of wider significance (Cameron & Earley, 2015). The emergence of the term within ecological study and its uptake are compelling, even though the natural environment today is still often mistakenly thought of as a ‘passive backdrop’ (Spencer, 2016). Equally, ecological systems studies of the 1960s and 1970s provide continuity and historic contextualization for the widespread uptake of the Anthropocene.

This study is centred on the discussion of three art projects through which the possibilities of the archive as source for the understanding of environmental change are explored. I proceed by studying the respective archives and their ‘re-performance’ (a concept discussed in Chapter 3). Significantly, all three case-study projects build on artists’ engagements with the archives of the work of historic protagonists. The first, Mark Dion’s performative and sculptural project *A Yard of Jungle* (1992), which responds to fieldwork by early twentieth-century American scientist William Beebe (1877–1962) in Brazil, connected a local site to global environmental politics in *Arté Amazonas*. The exhibition was part of the United Nations Conference on Environment and Development (UNCED), popularly known as the Rio Earth Summit. The second project, photographer Chrystel Lebas’ *The Sir Edward James Salisbury Archive Re-visited: observing environmental change in British landscape*, studied plant life in Scotland and Norfolk. In collaboration with botanists from 2011 onwards, Lebas used photographs for seasonal observations in the field. The third case study focuses on the photographic book by Nguyen the Thuc *Kohle unter Magdeborn* [Coal underneath Magdeborn] (ca. 1976), which documents the impact of open-cast brown-coal mining on a local community in the German Democratic Republic in the 1970s, reflecting the effects of the ‘oil crisis’. The project was shown in the archival exhibition *Freundschaftsantiqua* [Friendship

antiqua] (2014) in Leipzig, together with new photographs of the former mining area by Christiane Eisler.

In broad terms, these art projects, with their interest in and particular methods of focusing on the environment, have their origins in the environmental art of the 1960s and 1970s. Ecological and environmental works can take a wide variety of forms, reflecting diverse approaches to nature and society (Demos, 2009; Hahn & Fischer-Lichte, 2015; Matilsky, 1992). Such forms encompass spatially oriented and site-specific projects using the materials of the environment itself as in the land and environmental art movement (Kastner & Wallis, 1998), and owe much to conceptual artistic practice—e.g. its dematerialization of the art object and its interest in methods and systems (Fowkes, 2015)—much of which is reprised in current contemporary artworks. Throughout the twentieth century, artists have made art using archives in a variety of ways, notably as repository, medium or critique (L'Internationale online, 2016; Osthoff, 2009; Schaffner & Winzen, 1998; Spieker, 2008). The archive has been explored as an organizational and experimental space for the storage, extraction and creation of knowledge.

Environmental change can become recognized through the uses of archives, their materials, structures and procedures. In this thesis I work with an expanded formulation of the archive as both organizational space and as metaphor for memory and epistemic productivity. This expanded formulation of the archives of science and culture has three constituent parts: the documentary and object archive as historical repository; the environment as archive of the Earth, including its geological strata and fossil materials, biosphere and atmosphere; and the human body, memory and mnemonic processes as archive. In order to become useful in the study of environmental change, the 'archive' is considered through its materials (objects and documents), structures and procedures. Archival architecture (registry, storage, access) and its management structures (acquisition, database, retrieval, security) preserve, conserve and transform archival materials into seemingly immutable records, with limited or no circulation outside of the archival structure. The secondary value of archival materials lies in future research, the re-use of these archives, how and why they are re-assessed, re-valued and re-invented. For example, we need to explore further the lives of photographs within archives, their

role as objects of knowledge in documenting the world (Mitman & Wilder, 2016) and, specifically, the uses of archival photography collections in identifying environmental change. The artists' projects discussed here re-perform archival structures and procedures for new purposes, thereby re-assessing the archive and making it relevant to a different set of enquiries. In their projects the artists relate archiving processes to an environment. They thereby open up narratives between events in time and between the archival and environmental spaces.

Archives proliferate: the very process of archival investigation spawns a new archive. Re-performing the archive, its procedures and materials can serve to interrogate cumulative effects of human interventions in our environments as well as natural changes. Moreover, the methodology of re-performance can make evident the discrepancy between an event in space and time and its evidentiary records. Since archives can only ever hold fragments and materials distant from their original context, fieldwork is integral to the making of new artistic projects in the case studies discussed here. The framing of and being within landscape underpin the art projects' methodologies. Being within the landscape subsequently informs my own analyses of the works. The contingencies of the field and archive combined offer sites for artists' and collaborators' complex relations, be they fictitious (when involving a historic protagonist) or real.

The thesis is organized in two parts. The first part consists of three chapters, including this one, which provide the theoretical and methodological context and rationale for the approach in the case studies. Here I set out the analytical framework for the study of the selected artworks and explain how specific issues are addressed. As well as exploring the meanings and functions of the archive in the context of contemporary art, I ask further questions about the interpretation of archives for environmental change. The second part of the thesis discusses works by three artists, all of whom have worked primarily in Europe and North America in the period 1970s to the present. In the remainder of this introduction, I discuss the selection of case studies and the overall methodological approach: more specific aspects of methods pursued in relation to each case study are discussed within the individual chapters.

1.1. Research methods and case studies

In conducting research for this thesis, I have deployed a broadly interpretative framework, linking archival research, interviews, observation and participation. My key analytical tool is the case study as a means to demonstrate and to reveal—to make visible and to rethink what we thought we knew. This approach was selected because the selected artists' strategies are exemplary in advancing representations of environmental change in innovative ways. The three artist's projects discussed in the second part of the thesis work with representations of environments and how we know these environments. Notably they seek information in historic materials. These historic references, revitalized, relived and re-contextualized for the present, come back into view through the work of the artists, thereby deliberately creating a continuing engagement with an environment. The engagement with historic work is also often prompted by, or in collaboration with, a curator.

My analysis of the artworks highlights the interactions of environments, objects and people in the construction of knowledge. The artists in these case studies engage with natural environments through fieldwork and with other kinds of environments, such as the institutional spaces of archives and the pedagogic space of the art academy. The resulting works of art are composite productions, engaging explicitly or implicitly with elements of their environments and historic material from the archive. Moreover, the artists' spaces for research can be the studio or a studio-cum-laboratory within the exhibition space. Within this range of spaces the artists perform epistemic processes of observation and research, either as individuals, in collaboration, or within a social community. They draw our attention to the knowledge contained within and around material objects and matter of both life (animals and plants) and non-life (such as minerals) (Heesen & Lutz, 2005, pp. 16–17). The processes of producing works within these spaces contribute to an affective, relational and transnational experience of environmental change. The research methods used in the case studies reflect a combination of archival and field research while drawing on my prior experience as a curator of contemporary art. In each of the case studies, my relationship with the artist was less that of a neutral observer than that of a collaborator and participant, to a greater or lesser extent; and my professional experience as a curator undoubtedly shaped the kinds

of participation that developed, though in each case the pattern of research engagement was somewhat different, as described within the individual chapters in the second part of the thesis. These case studies required different combinations of research method and practice. The study of Dion's project, for example, involved a journey to New York to interview the artist in his studio and to consult with co-curators Katherine McLeod and archivist Madeleine Thompson on the 2017 exhibition of the Department of Tropical Research's (DTR) archive. Beebe established the Department in the late 1910s. I also undertook a period of intensive study of the DTR archive held at the Bronx Zoo in New York. For Lebas' project, my research included archival research at the Royal Botanic Gardens, Kew, where Salisbury was Director for 13 years, to examine the Salisbury archives and herbarium sheets. Visits to the Natural History Museum to study the images and to Lebas' studio were combined with participation in fieldwork. In October 2013 I accompanied Lebas and her scientific collaborators to the Rothiemurchus Estate in Scotland. Finally, in order to research Nguyen's work I travelled to Leipzig where I studied his and other students' works in the archives, conducted a number of interviews with former miners, former inhabitants of Magdeborn, artist Christiane Eisler and one of the curators of the *Freundschaftsantiqua* exhibition. Unable to trace Nguyen himself, my knowledge about his work relies primarily on his own student dissertation.

The selection of projects for close study was a process that depended on both the evolution of my conceptual approach, as described in the first part of the thesis, and more pragmatic considerations, including in one case a prior collaboration (with Mark Dion) which allowed direct access to the artist, and in another a prior institutional affiliation (with the Natural History Museum) that provided the origins of the collaborative project (with Chrystel Lebas) described. The choice of projects also reflected a desire to range widely in geographical terms: the selected artworks reference sites from Brazil to the United States of America, through Great Britain and East Germany to Vietnam. In terms of chronology, there was a unifying thread: in each case, I seek to situate the artists' practices within the contexts of global environmental and artistic discourses of the 1970s, the 1990s and the present, while linking to more regional and indeed local contexts. The geographical purview

of the case studies highlights global connections, often suggested through wider economic trends reflected within specific local situations. In all the case studies the emphasis is on the artistic engagement with changes at the terrestrial (as opposed to geological or atmospheric) scale and human perception of processes, changes and sequences. The projects thereby respond to some of the global environmental challenges suggested by the idea of the Anthropocene as it has developed in the twenty-first century.

All of the selected artists also engage, in very different ways, with archives of environmental change. Mark Dion, for example, typically seeks to make visible the construction of nature through re-performances of scientific fieldwork and archival processes by breaking down these processes into their component procedures, materials and sites. The particular work examined in Chapter 4 reflects Dion's response to an early twentieth-century ecologist's fieldwork in tropical South America, and his re-performance of iconic moments of that fieldwork in various sites within rainforest ecosystems and the 1992 *Arté Amazonas* exhibition at the Museu de Arte Moderna in Rio de Janeiro. The material culture produced through fieldwork and the labour of studying and storing the finds was meticulously assembled. Yet its contents were irretrievable. Dion's sculptural installation became a tableau of an archive on display. Beyond the immediate exhibition space, this archive was set into the context of global environmental change debated at the first United Nations Conference on Environment and Development in Rio in June 1992.

Chrystel Lebas' research into Salisbury's photographic collection of British plant habitats, the subject of Chapter 5, bears a surface resemblance to Dion's work in the sense that the artist is seeking to work in dialogue with the historical record, this time an uncatalogued archive of photographic glass-plate negatives and black-and-white contact prints depicting vegetation from various parts of the British Isles held at the Natural History Museum in London. Such archives are necessarily contingent and fragmentary: in the very process of becoming an archive, documents and objects are gathered, passed on, separated, lost, forgotten, found and reunited. In their re-use, further creative work is done and in this case I am interested specifically in the ways in which an historic image archive can be re-worked in a collaborative artistic practice. In this case, museum scientists were

interested in the potential uses of the visual record to investigate environmental change over the past century. The artist worked in collaboration with botanists in visually documenting the same habitats and plant communities in Scotland and East Anglia that had been photographed almost a century ago. What is of particular interest here is the role of photography in both ecology and environmental art, and the different methods at work in collaborative field practice.

Chapter 6 explores the meanings of an engaged art practice in a very different context: that of Cold War East Germany. The work of international students in the Academy of Fine Arts Leipzig was the subject of a 2014 exhibition which sought to ask new questions about internationalism and art in the GDR. The work of Vietnamese photographer Nguyen the Thuc, especially his *Kohle unter Magdeborn* [Coal underneath Magdeborn] (ca. 1976), provides the focus for Chapter 6 because it illustrates different aspects of the role of the archive: an archive of art practice, as reconstructed by contemporary curators; the environment as archive, registering the dramatic environmental and social impacts of brown-coal mining in the region; and the body itself as archive, shaped by individual and collective memory.

In each of the case studies considered in the second part of this thesis, the archive is re-performed in order to make its procedures visible and to create new routes of access. Archival materials are represented in the artists' works, sometimes in their profusion, sometimes imbued with a sense of loss, and of violence. The thesis seeks to engage with multiple points of view by juxtaposing different kinds of engagement with environment—nature, ecology, landscape—at different moments in time, bringing them into relation with one another. The approach is informed by the principle of montage as a structural device through which to connect various materials from different temporal and spatial contexts. Montage, often understood as collage, assemblage, photo- or film-montage, is here conceptually expanded as 'epistemic montage' (Mahony, 2015, p. 164), evoking a topology of different forms of knowledge and culture. Montage in this sense can provide a methodology for exhibitions (Bishop, 2015), for the performance of scientific referencing as 'photo-philosophical montage' (Latour, 1999, p. 24), for the reading of an environment as a composite montage (Raffles, 2002) or the sequential presentation of before-and-after images of an environment, in which images comment upon each other

(Weizman & Weizman, 2013). Each of the following chapters thus opens with a visual or textual vignette, whether a diagram, a sculpture, a video still, archival fragment or autoethnographic reflection. These devices are part of the story.

The works of art discussed in this thesis took shape in diverse encounters between particular people, within and outside of institutions, in a variety of landscape settings and with wider histories and their material legacies. Understanding these processes in relation to place and to materials provides a useful way of thinking about the co-production of works between humans and the landscape, objects, historical facts and fiction (Facer & Pahl, 2017). For example, the tropical environment of northern Brazil and a fascination for the work of early twentieth-century naturalists shaped Mark Dion's research for *A Yard of Jungle*. The landscape of Culbin Sands on the Scottish coast and the National Park of the Cairngorms, together with the materiality of a photographic archive became material agents in Chrystel Lebas' collaborative project *The Sir Edward James Salisbury archive re-visited: observing environmental change in British landscape*. Thinking of the fossilized plants from the geological layers in the Leipzig region in Germany as having material agency articulates mutual transformations of landscape and human lives—as documented by Nguyen the Thuc in *Coal underneath Magdeborn* in the 1970s and recently re-traced by Christiane Eisler.

The case study in Chapter 6 in particular relies on my fieldwork and own experience of the landscape. By bringing in the autobiographical present, I was able to experience the conditions of the present, hoping that these give me insights into the past. Methodologically, history here becomes a montage in which the moments quoted and those experienced become 'juxtaposed fragments from widely dispersed [places and] times' (Ulmer quoted in Denzin, 2006, p. 423). The method of analytic autoethnography allowed me to be a full and interacting member within the research group at my choosing, and to receive inside information; to engage in open and democratic dialogues with the collaborators; and to adopt a narrative presence in the written text, particular in the case of Nguyen's and Eisler's work. The conditions for writing the narrative were clearly only fulfilled because I had been to the place myself and on my own. Similarly, the image analysis became contextualized through fieldwork and through participation in collaborative

activities in situ. Various archival images were used as adjuncts to discussions at the site of the former mine with residents and visitors, creating common ground. I joined a monthly group meeting of former inhabitants at a local pub, sharing their stories and discussing Nguyen's photographs with them. I also discussed Nguyen's images with artist Christiane Eisler in seeking to understand what she thought about his work and how she related to its sites. This conversation also allowed me to immerse myself in Eisler's work and to consider how I would bring it into dialogue with Nguyen's photographs: another archive, and another re-performance.

The case studies presented in this thesis speak to much wider issues. While the three art projects themselves belong to different periods of artistic practice, reflecting particular moments of concern over global environmental change, they also reference environmental investigation over a much longer historical period. Similarly, while the locations of the artists, included here together with other examples of artists' works, lie predominantly within Europe and North America, their reach extends over a much wider, indeed global arena. In sum, the case studies are rooted within increasingly global networks of environmental concern and artistic discourse in periods of fundamental transition. The concluding chapter offers comparisons between the case studies. I discuss the artists' strategies for the representations of human presence and intervention in the environment and thoughts on curatorial practice in relation to the age of the Anthropocene.

2. Art and environmental change

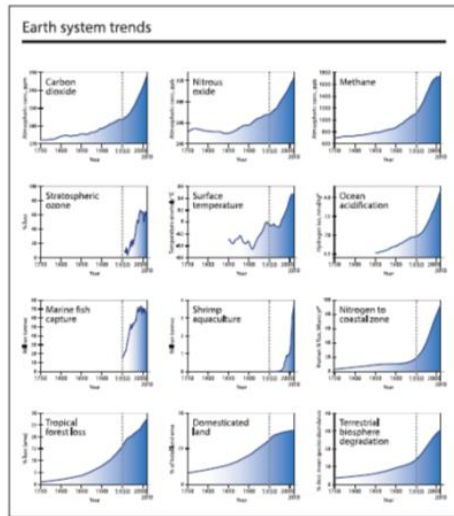


Figure 2.1. Earth system trends graphs. Trends from 1750 to 2010 in indicators for the structure and functioning of the Earth system.

From: 'The trajectory of the Anthropocene: the Great Acceleration', by W. Steffen, W. Broadgate, L. Deutsch, O. Gaffney, & C. Ludwig (2015), *The Anthropocene Review* 2(1), 87. [Screen shot].



Figure 2.2. Mark Dion *New Curiosities for the Green Vault. Unicorn Horn* (2014) [Replica of a narwhal tooth, metal, paint. 540 x 565 x 180 mm]

We begin with two exemplary visualizations of environmental change. On the one hand, a set of graphs depicting trends in Earth system dynamics (Fig. 2.1.); on the other, a small sculpture made by American artist Mark Dion for a recent exhibition in Dresden, Germany (Fig. 2.2.). Each is recognizable within different, though intersecting, cultures of science and of art, reflecting distinct creative and functional practices, interpretations and aesthetics. Juxtaposed, they prompt the question of how to fathom the natural world: through numerical analysis, modelling, practices of mimesis or via a magical imaginary?

The set of graphs, designed by the International Geosphere-Biosphere Programme (IGBP), was first published in 2004 to show Earth system trends, meaning interlocking global-scale, planetary processes, and socio-economic trends from 1750 to 2010. The data on which they were based was originally gathered through a range of observations and measurements, via instruments and computational models. It was the role of the IGBP between 1987 and 2015 to

coordinate international research on global-scale and regional-scale interactions between Earth's biological, chemical and physical processes and how those processes connect with the social and economic dimensions of human systems (IGBP, 2015). The graphs were updated in 2010 (Steffen et al., 2015). The latter version differentiates the Organization for Economic Cooperation and Development (OECD) countries from emerging economies and the rest of the world. The 12 Earth-system graphs, reproduced here, detail trends in, among other things, quantities of carbon dioxide, methane and ozone; loss of tropical forest; decrease of species abundance; and proportion of domesticated land. Other graphs in the series, following the same principles (not reproduced here), visualize socio-economic trends in population growth, numbers of large dams, water use, number of motor vehicles or arrivals in international tourism. These graphs, shaped like a 'hockey stick', are used to visualize the evidence of human activity within the Earth system as moving beyond the range of variability characterizing the Holocene, the current geologic epoch. Collectively, they have become a corner stone of the scientific empirical case for the Anthropocene, plotting its beginning in the era of European industrialization around 1800—or indeed the Great Acceleration in the 1950s (Broadgate, 2015). The presentation of the numerical data in a consistent visual format, though the vertical scales differ, conveys a strong message not just about the past but about the future, if no action is taken. The graphs are intended as an urgent warning call to scientific and non-scientific communities. These 'icons' of change have now been widely circulated and even appeared in Dan Brown's 2013 novel *Inferno* (p. 83). They are particularly relevant since the life experience of almost everyone living now has taken place within the historical moment of the so-called Great Acceleration—an anomalous and unrepresentative period of human species and biosphere relations and 'almost certainly a brief blip in human history, environmental history, and Earth history' (McNeill & Engelke, 2014, p.5).

To note only one example of their impact, these graphs were presented as striking visuals in double projection in a lecture on the Anthropocene by Bernd Scherer at the Haus der Kulturen der Welt [House of World Cultures] (HKW), Berlin, in October 2014. Its audience had gathered for one of the numerous events and exhibitions as part of *The Anthropocene Project* (2013–2014). The two-year

programme created a forum for those interested and working in the sciences and the arts, including geologists, historians of science, artists, curators and the general public, to debate the Anthropocene's hypothesis 'Humanity forms nature' ('The Anthropocene Project', 2013).

At the same moment, in a Dresden exhibition entitled *The Academy of Things*, the artist Mark Dion was exhibiting a new work entitled *New Curiosities for the Green Vault. Unicorn Horn*.¹ Shown within an exuberant baroque enfilade of galleries, this curious object was displayed with other '*mirabilia*, wonders of human imagination and dexterity', alongside trophies amassed by generations of aristocratic collectors (Syndram, 2014, p. 94). The small sculpture is made of a metal stand and a reproduction of a unicorn horn. The unicorn horn resembles a twisted string of marshmallow. Softly draped over the cross-section of a stand adapted for this new purpose—the straight brass arms once used to hold accessories for a domestic fireplace—the 'effete' unicorn horn suggests a loss of 'potency' (Lange-Berndt, 2014, p. 98). When considered in connection with the numerical, systems-modelling graphic representation of the Great Acceleration rather than the curiosities of aristocratic enlightenment, the sculpture becomes a different kind of counterpoint. In this context, the vertical and horizontal bars of the metal structure could be read as an alternative, almost judicial, set of axes, plotting an imaginary graph. A drop of blood drains from the freshly severed unicorn horn—or is it the tusk of the narwhal (*Monodon monoceros* (Linnaeus, 1758))? The freshly severed horn spells violence and exudes melancholia. The metal stand, an 'object of human thought' (Ingold, 2016) and the artistic representation of the horn, the 'unicorn of the sea' ('Marinebio', n. d.), allude to a struggle between nature and human-made artifice.

The graphs and the sculpture, then, encapsulate a central dualism within the history of Western European environmentalism, in which the scientific and the subjective are disconnected (Pepper, 1989, p. 78). But they also show the intrinsic functional and emotional connections between humans and the natural world.

1. Mark Dion: *The Academy of Things* exhibition, 24 October 2014 to 25 January 2015 at the Oktogon, Hochschule für Bildende Künste Dresden, the Albertinum and the Green Vault, Staatliche Kunstsammlungen Dresden.

These images are not merely part of a history of Western environmentalism; they also express the traditions out of which the Anthropocene proposal itself arises. As Scherer (2013) suggests in his foreword to the exhibition catalogue *The Whole Earth: California and the disappearance of the outside* (Diederichsen & Franke, 2013), the Anthropocene thesis brings together two traditions of thought, hitherto distanced, but now becoming symbiotic. On the one hand, there is a concern with the interplay between the natural sciences, technology and economic forces; on the other hand, there is the notion of a human-made nature that erases the distinction between nature and culture. While, in my view, these two traditions intersect in significant ways, they provide useful departure points for a discussion of the Anthropocene proposition.

2.1. Framing time, defining spaces

Both the Earth system graphs and the artist's sculpture narrate histories of human activities in the world. In this contrapuntal juxtaposition of form and media, the sculpture and the graphs comment on and express relations between the non-human and human. The sculpted human-made unicorn tusk is an emblem of magic and the wonders of the natural world for humans. It represents a conflation between nature and human culture. The two visualizations, the graphs and the sculpture, originate respectively in scientific and artistic practices, but are complementary in representing the human impact on the natural world.

Both works were selected as exemplary illustrations signifying material and human interactions with the environment. In a broad sense these two works conceptually construct nature. The archive as a system for both these material and social interactions is useful here as foundational to discourses about the environment. An expanded formulation of the archive as not only encompassing evidential resources (such as documents, geological and fossil specimens and human-made objects), but also as generating diverse interpretations, multiple readings and fluidity of categories supports a broader approach to the study of environmental change. In the following chapter I discuss archives and their potential for knowing environmental change. In the present chapter the focus is on tracing how knowledge about environmental change has developed primarily within

the historic contexts of the 1970s, the 1990s and the 2010s as well as references to the early twentieth century.

The scientific questions summarized in the Anthropocene proposition originated in the Earth system sciences, a multi-disciplinary field. Its foundations were laid in 1950s and 1960s systems ecology and were enabled through technological innovations of sensing and computer modelling of human-environment interactions. In this section, I seek to contextualize the meanings, critiques and underlying politics of the Anthropocene by describing pre-existing intellectual frameworks of ecology and the environment. I draw on examples of the imagery environmental science generates to broadcast its concerns about environmental risks to a wider public. The visual manifestations serve a wider cultural discourse on environmentalism, a concept manifest in specific languages, rhetorical devices and discursive media, graphs, equations, diagrams and photographs as well as iconic, material and symbolic practices (Harré, Brockmeier, & Mühlhäusler, 1999, pp. 3–4). Section 2.2. provides a brief account of the development of ecological and environmental thought especially in relation to visual culture at large. Section 2.3. sketches a historical perspective on late 1960s concerns about resources and the emergence of environmental movements as precursors to the Anthropocene debate. The scientific proposition of the Anthropocene has catalysed a proliferation of wider intellectual activity focusing on ontological, epistemic, political and aesthetic consequences that reach well beyond the ambit of Earth system sciences (Lorimer, 2017). The chapter's closing section surveys relevant definitions of the Anthropocene. I am particularly concerned with the question of how artists conduct enquiries into the history and magnitude of human impacts upon landscapes and ecosystems. The examples studied here do so not by adopting planetary-scale methodologies but by making locally-based enquiries.

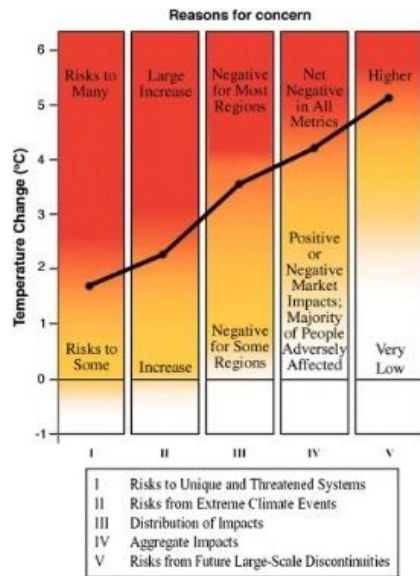


Figure 2.3. The 'Burning embers' diagram from IPCC Third Assessment Report with EU stabilization target superimposed on emission scenarios. From: Intergovernmental Panel on Climate Change, Summary for Policy Makers: Climate Change 2001: Impacts, Adaptation & Vulnerability Contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), Geneva, Switzerland, 2001. From 'Conventions of climate change: constructions of danger and the dispossession of the atmosphere', by D. M. Liverman (2009), *Journal of Historical Geography*, 35(2), 287. [Screen shot].

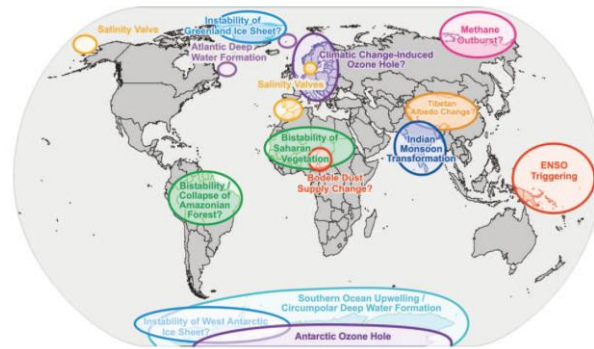


Figure 2.4. H. J. Schellnhuber & H. Held, map of global 'tipping points' in climate change. From: 'Inventing an icon', by M. Kemp (2005), *Nature*, 437 (7063), 1238. [Screen shot].

Visual imagery proliferates in the contemporary public discourse of environmental change, as it succinctly compresses environmental and scientific narratives for wider audiences. The ensemble of graphs, summarized as the Great Acceleration, evokes in accessible form complex temporal, spatial and material relationships. These graphs constitute a central argument for the Anthropocene proposal. Historically, they also echo the function of two earlier environmental images: the 'Burning embers' diagram, as it subsequently became known, from the

Intergovernmental Panel on Climate Change (IPCC) Third Assessment Report (2001)² and the ‘Tipping points’ map by Hans Joachim Schellnhuber from 2005 (Figs 2.3. and 2.4. respectively). Both these images are attempts to summarize, visualize and communicate global ‘reasons for concern’ about ‘dangerous’ climate change. The ‘Burning embers’ diagram—the title is inspired by the yellow to deep red shading of the columns—correlates temperature rises with five different risk scenarios. These are in turn related to regions, people and markets, which may be positively or negatively affected by temperature changes outside of natural variability. The diagram was a schematic quantitative appraisal and complex to interpret (Liverman, 2009, p. 286). Its reception was ambiguous—‘embraced by some, rejected by others, and used by yet others to argue both for and against the reality of a global threshold where climate change becomes “dangerous”’ (Mahony, 2015, p. 153). A version of the diagram appeared in the influential *Stern review on the economics of climate change* (2006) taking the research into economic and political arenas. Mahony’s (2015) study of the diagram’s ‘geography of objectivity’ includes scrutiny of different people in various interpretative communities and circuits of climate science, policy and advocacy. The author contests the practice and objectivity of ‘expert judgement’ in the diagram’s circulation, because these diverse communities have differing political objectives.

The expert knowledge visualized in the ‘Tipping points’ map (Fig. 2.4.) was intended to communicate the risks of discontinuous changes in the Earth’s system (Liverman, 2009, pp. 286–287). The map first emerged in Held and Schellnhuber’s work and was later discussed at the *Changing the climate* meeting of researchers and arts practitioners held in Oxford in September 2005. Finding an iconic image to publicize the perils associated with climate change was one of the goals of this meeting. However, art historian Martin Kemp (2005) in his article in the science journal *Nature* questions whether, given the contentious nature of the climate change debates, such an image could actually be found.

2. The first IPCC report (FAR) was published in 1990, the Second Assessment Report (SAR) in 1995, the Third Assessment Report: Climate Change (TAR) in 2001, the Fourth Assessment Report (AR4) in 2007, the latest, the Fifth Assessment Report (AR5), was released between September 2013 and November 2014.

Liverman (2009) shows that the 'Burning embers' diagram and the 'Tipping points' map both underpin narratives on climate change and models for its alleviation. First, Liverman (pp. 287–288) critiques such diagrammatic visualizations, arguing that they leave 'human systems and geographies relatively unexplored or obscured', lacking nuanced distribution of vulnerability, risks and capacity for adaptation to prevent dangerous anthropogenic interference with the climate system. For the contexts of climate science, policy making through international climate conventions and market environmentalism, she demonstrates that 'dangerous climate change' (p. 296) has become a subjective concept inadequate to, even negatively impacting on, the human and geographical dimensions of climate risks. In 1995, the IPCC famously stated that 'dangerous' levels of global warming are expected to occur, if the global mean surface air temperature rises more than 2° Celsius above pre-industrial levels. A concerted international political response to climate change had been initiated at the Rio Earth Summit in 1992 and has continued through to the COP21 (Conference of Parties) meeting in Paris in December 2015 ('COP21', n. d.).

The Earth system trends graphs, as well as the 'Burning embers' diagram and the 'Tipping points' map, are attempts to condense scientific and social-economic data into graspable visual knowledge. Each image is underpinned by scientific analyses and legitimized through peer-reviewed publication and re-publication. Though Mahony specifically refers to the IPCC, the diagrams shown all represent 'socio-technical experiment[s] in a new form of distributed, collaborative knowledge-making' (Mahony, 2015, p. 164). These images have been widely circulated within the scientific community and outside of it. They have come to play a role in how we, scientists, citizens, environmentalists, artists, fathom and perceive concepts of risk, and how these might affect us by 'inhabit[ing] contemporary moods of anxiety and concern about the finitude of humanity' (Chakrabarty, 2009, p. 197). In this context, the graphs, diagram and map are visual tools to communicate issues of environmental change and questions of policy response to the media, to scientists and to a wide variety of non-expert audiences. But as discussed above, they are more than just visual tools. They may have other effects within specific communities, serve political objectives and embody complex

emotions. The diagrams, as referred to earlier, are thus ‘epistemic montages’ (Mahony, 2015, p. 164), which were negotiated through processes of scientific credibility and policy making.

The conceptual ceiling of ‘2 degrees’ or the imaginary ‘tipping points’ have become symbolic markers—in typographic form ‘2°’, in verbal form ‘two degrees’. Such succinct indicators of risk thus short-cut the complexity of present environmental predicaments through a unifying global image and descriptor. Terms such as ‘2 degrees’ and ‘tipping point’ have also entered the domain of the visual arts.³ They are used as a conceptual basis and title for art projects, festivals and networks, as for example in the London-based arts organization Tipping Point. They thus serve as a connection between the trajectory of global, contemporary modernity and the parts-per-million vocabulary of environmental science.

The idea of the Great Acceleration currently applied within the Earth sciences in support of the Anthropocene proposition, can also be traced yet further back, for example to the Futures Studies of the 1960s and 1970s. Today’s Anthropocene proposition, endorsed by the data on acceleration and enlisting the rhetoric of ‘burning embers’ and ‘tipping points’ to encourage action, echoes an earlier moment when space-age optimism slid into the pessimistic scenarios of the 1970s. In particular, the celebrated report *The Limits to Growth*, published in 1972 to popular acclaim, projected societal collapse through accelerating industrialization, rapid population growth, widespread malnutrition, depletion of non-renewable resources and a deteriorating environment (Meadows, Meadows, Randers, & Behrens, 1974). The authors’ aim in forecasting this apocalyptic scenario was explicitly ‘to stir up public opinion in order to prevent the disaster they were forecasting’ (Seefried, 2011, p. 5). Historian Elke Seefried, tracing the societal impacts of *The Limits to Growth* study, describes the perception of acceleration as such that the ‘knowledge of the past seemed to offer less and less that was useful for solving future problems. Thus the future was separated from any relation to the

3. For example, the London-based organization Artsadmin runs the 2 Degrees Festival to discuss climate change issues in an interdisciplinary format for Art.Climate.Action. See also the work *Exceeding 2°C* (2007/2014) by artist Tue Greenfort, initially made for the Sharjah Biennial in 2007.

past; the horizon of expectation [Erwartungshorizont] was separated from the space of experience [Erfahrungsraum]' (p. 7).

How do different constituencies relate past, present and future in an understanding of environmental change reaching beyond human timescales and beyond the local to the global? Environmental historian Stephen Bocking (2015, p. 490) concedes that 'much of what scientists seek to explain is also beyond human perception: change on global scales or over long periods of time'. He brings in the notion of 'concepts' to 'tell us what we could perceive if we were there, serving as ways of "seeing", understanding and acting on otherwise invisible phenomena . . . to place things within larger frames of understanding'. The concept of global environmental change, as expressed through global models of climate change or the notion of the Anthropocene, is closely allied to other concepts of the future, prediction, expertise, the environment (Bocking, 2015); and it links 'our sense of the now' to the current planetary crisis (Chakrabarty, 2009, p. 197), as well as to our experience of the past. The axes on the Earth system trends graphs (Fig. 2.1.), used to make an argument for the trajectory of the Great Acceleration, denote time in years and quantities in a range of units to map a chronological progression of variables in a global space. Framing time and defining spaces are fundamentals of the scientific discourse on global environmental change. As Harré et al. (1999) state on time and environmental concerns:

Environmentalism, above all, links the past with the future. The present is always presented as the sum of the consequences of the past and necessary platform for the emergence of the future. All environmental discourse encompasses a thematic level of temporal concerns. (p.7)

The steep curve of the line expressed in the phrase 'great acceleration' conveys a sense of urgency in its repetition across the family of twelve graphs, just as the 'limits to growth' modellers predicted catastrophe in the absence of human action. Time itself is given a moral quality, with impending crisis threatening a great interruption of sorts—a deceleration, perhaps, as visualized by Mark Dion in the form of an impotent, soft and severed unicorn horn. In the words of environmental historian Ramachandra Guha (2000, p. 151), the environmentalism of the 1970s

demonstrates a ‘unique blending of science and prophecy’. In our present time, philosopher Peter Sloterdijk (2014, p. 257) comments, the term ‘Anthropocene’ proliferates because, despite being ‘cloaked in scientific neutrality, it conveys a message of almost unparalleled moral and political urgency’. Returning to the past to see how the present came to be, is not only helpful in seeing how the Great Acceleration ‘jump-started the Anthropocene’ (McNeill & Engelke, 2014, p. 6). Returning to the past is what the artists’ projects discussed here do to understand the phenomena of environmental change, suggested through an aesthetics of archives.

2.2. Art, ecology, environment

Why and when did the concerns of ecology and environment become relevant to artists’ practices and to visual culture more generally? Where are the roots of this engagement? What were mutual influences between cultural practices, scientific thoughts and visual representations? This section seeks to outline a wider historical context for the interweaving of art, ecology and environment.

The word ‘ecology’ was first used by biologist Ernst Haeckel (1834–1919) in 1866, though the idea has a longer conceptual history (Radkau, 2014, p. 320). In this longer history Alexander von Humboldt (1769–1859) is often considered the first ecologist (Brüggemeier, 2014, p. 273). Haeckel joined biology and visual art to describe, illustrate and argue for the aesthetic, anatomical and evolutionary principles of ecology in his work *Generelle Morphologie der Organismen* [General Morphology of Organisms] (1866). His work aimed to show that entities should be understood in their relationships with other entities and processes (Orr, Lansing, & Dove, 2015). Ecology implies a family of living organisms, each dwelling in close proximity to each other, sharing the same physical space, with conflicting appetites or complementary needs (Arnold, 1996, pp. 3–4). The etymology of the term ‘eco’ relates to the Greek word *oikos*, meaning ‘household, dwelling, family’, combined with *logos*, meaning ‘word, reason’, to form ‘Oecologie’, translated as ‘ecology’ in English. Haeckel thus established interaction as a crucial feature in ecology and the relations of an organism within the economy of a natural unity (‘Oeconomie des Natur–Ganzen’). Historian Joachim Radkau (2014) interprets the affinity between

the terms ecology and economy [in German *Ökologie* and *Ökonomie*] as evoking some systemic relationship between ecology and economics.

In 1904 Haeckel published the richly illustrated *Kunstformen der Natur* (Art forms in nature), in which he determines the relationship of art to nature as one of imitation (Hahn & Fischer-Lichte, 2015, pp. 12–13). The illustrations aestheticized the panoply of natural forms in all their variations through idealization and abstraction, arranged to show order and symmetry. Haeckel's drawings therefore, were not just made to support his arguments of evolution and morphogenesis; the visual images were themselves construed as arguments. The publication influenced the arts of the early twentieth century, particularly the nature-inspired styles of *Art Nouveau* and *Jugendstil*. Yet Haeckel's forms also show that he was influenced by the visual languages of the day (Ball, 2007), creating an aesthetic terrain shared between art and ecology. Similarly, Charles Darwin's (1809–1882) widely published work on natural selection both reflected and had an effect on contemporary visual culture, as highlighted in recent research and exhibitions (Baumunk, 1994; Donald & Munro, 2009; Smith, 2006). For example, the exhibition *Endless Forms: Charles Darwin, natural science and the visual arts* (Donald & Munro, 2009) made this connection tangible by displaying together scientific studies, natural history specimens and photographs with artists' paintings, sculptures and drawings to trace mutual influences.

Although the intellectual roots of ecology are often traced back to Humboldt, Haeckel and Darwin, it was in the twentieth century that the language, practices and techniques of ecology as a modern scientific discipline were forged. In particular, the concept of the 'system' and its subsequent importance in ecology and environmental management played a key role (Cameron & Earley, 2015). The term 'ecosystem' was introduced by British ecologist and plant geographer Arthur G. Tansley in his 1935 essay 'The use and abuse of vegetational concepts and terms', in which he also addressed the question, 'Is man part of "nature" or not?' (1935, p. 303). This question was a consequence of another key term introduced by Tansley—the 'anthropogenic', first coined in 1923, meaning 'nature produced by man' (Cameron, 1999; 2013; Cameron & Earley, 2015, p. 474). An ecosystem, for Tansley, is an 'interacting and interdependent system of organic and inorganic

components’—as already understood by Haeckel. Tansley (1935) explicitly describes ‘modern civilized’ humans as active constituents of such systems:

It is obvious that modern civilized man upsets the “natural” ecosystems or “biotic communities” on a very large scale . . . Regarded as an exceptionally powerful biotic factor which increasingly upsets the equilibrium of preexisting ecosystems and eventually destroys them, at the same time forming new ones of very different nature, human activity finds its proper place in ecology . . . In such ways anthropogenic ecosystems differ from those developed independently of man. (pp. 303–304)

Tansley’s thinking was, like Darwin’s and Haeckel’s before him, influenced by contemporaneous ideas—in this case, within physics, politics and psychoanalysis. In turn, the ‘complex imaginary’ of Tansley’s concept found subsequent use and abuse in various political and social settings (Cameron & Greer, 2015). Recent revisionist work on Tansley by Cameron and others suggests a more general point reiterated in many histories of ecology and of environmental ideas over the last two decades, that environmental concepts and practices are typically entangled with wider social and political currents of thought, including imperial politics (Anker, 2001; Hagen, 1992; Radkau, 2014; Worster, 1994). In this context, then, it comes as no surprise to find that the Anthropocene proposal has engaged interest in such a wide variety of academic disciplines. Some of the issues about anthropogenic change raised by Tansley have resonated through the subsequent literature on environmental history. Arnold (1996, pp. 3–4) for example makes a distinction between ‘ecological history’ (focussing on the non-human world) and ‘environmental history’ (focussing on the human engagement with the physical world), only to concede that this distinction appears unrealistic in the modern era as human influence on nature is so pervasive. The ‘nature’ acting around us has become a product of social, human organization, an ‘emergent product of human agency’ (Castree, 2000, p. 457).

Many contemporary writings on environment and ecology call into question the dualism between the human and the natural. In *The ecology of others*, anthropologist Philippe Descola (2013, pp. 4–5) sets out two contrasting approaches to studying the relations between humans and their environment. The

first focuses on the ‘use, control and transformation of so-called natural resources’ in order to understand constraints to this relationship; the second concentrates on ‘the particularities of the symbolic treatment of a nature’ (pp. 4–5). The *Limits to Growth* study exemplifies the first approach, while historians of ecological ideas such as Donald Worster (1994) demonstrate the second. Rather than adjudicating between these approaches, Descola (2013) argues for a different model in which nature and society are recomposed in a new assemblage so that humans and non-humans are no longer ‘distributed between substances, processes, and representations, but as the instituted expression of relationships between multiple entities . . . in relation to one another’ (p.5). To pursue methodologies towards species relations and species-environment relations, it is useful to turn to the work of another anthropologist in order to provide a clearer distinction between the concepts of nature and environment. For Ingold (2000) nature is conceptualized as being looked upon by being outside of it and by not belonging. Environment on the other hand allows for a perspective of being within. He continues that already the conflation of the two terms as ‘natural environment’, makes us ‘imagine ourselves to be somehow *beyond* the world, and therefore in a position to intervene in its processes’ (p. 20). For Ingold, the environment is always understood relationally—the world takes on meaning in relation to human subjects, undergoing development and change with them and around them. Environments are therefore also continually under construction, a process in which the organism within its environment undergoes a process of growth and development in real time. Thus environments are, according to Ingold (2000), ‘themselves fundamentally historical . . . since they continually come into being in the process of our lives—since we shape them as they shape us’ (p.20). In turn, anthropologist Julie Cruikshank (2005, pp. 4–7) in *Do glaciers listen?* reminds us that nature is a tangible, physical world that often mocks its restraining representations. Cruikshank describes the topic of her study, the glaciers of the Mount Saint Elias region as constituting a sentient landscape, in which there is reciprocity between humans, non-human animals and a responsive landscape. As the landscape has shaped the social relations, in this case between its inhabitant indigenous peoples and their

encounters with European explorers, nature itself is a category of social analysis as important as—and entangled with—class, race, and gender.

Cameron and Earley (2015) then question the framing of environmental problems as ‘external nature: nature out there separate from us’ by drawing again on Tansley’s investigation of ecology. He highlighted the human as the ‘most powerful biotic factor within the ecosystem’, but this should underline ‘the role of human action, voice and responsibility’ (p. 479). Cameron and Earley (2015) thus suggest that:

the radical, unrealized potential of the ecosystem lies not in its evocative mechanism but more in acknowledging the interacting, interdependent humans within, seeds of its possible destruction no doubt, but not only that: *within*, we are ethical, feeling and relational biotic agents with desires and responsibilities for them. (p. 480)

The role of the human in relation to the ecosystem is understood here not just as an actual or potential agent of change, but also in emotional and ethical terms. This approach connects anthropological methodologies to those of ecosystem science. In parallel ways, anthropological scholars such as Cruikshank, Ingold and Raffles have created affective and relational methodologies relating the human to its environment. Their empirical work uses local, often indigenous, affective, and relational accounts of the environment and its agency. Geographers too are developing methods to study the ‘more-than-human’ (Adams, 2015; Whatmore, 2005), the non-human (Lorimer, 2010) and the inhuman (Yusoff, 2013; 2014), and to work with the agency of nature (Gandy, 2017; Wylie, 2002).

These studies in various different disciplinary contexts have contributed to the undoing of the dualism between humanity and nature. In the empirical studies to follow, I am particularly concerned with the extent to which contemporary artists are developing, through an engagement with archives of environmental change, representations of the ways in which environment–human relationships can be rethought. The analytic at work in this study is ecological: interdependencies and interconnections constitute the scaffolding on which the visual languages and material expressions are constructed. In the case-study chapters in particular, I will discuss how the forms and contents of the artworks under examination cohere to

represent environmental issues and draw on an ecology of forms and social relationships.

2.3. Environmentalisms

This section frames the Anthropocene debate in a historical perspective from the late 1960s onwards, focusing initially on the sensitization of humans to the environment through the first photographic images of the Earth taken from space, the *Earthrise* images. These images served not only to project the planet's beauty and fragility, but also to promote a global awareness of humanity—as opposed to local, regional or national communities. Secondly, I explore in more detail the anxiety around resources and population growth expressed through *The Limits to Growth* report in 1974. Finally, this section brings these two foci together to sketch a wider historical context for the emergence of social, political and institutional environmentalisms. These environmentalisms, notably in Europe and North America, in turn suggested the need to develop new ways of thinking, providing important precursors to the Anthropocene debate, especially the ideas of 'tipping points', as discussed earlier.

The *Earthrise* image has come to be understood as one of the first images of modern global environmentalism. The photograph was taken by NASA astronaut William Anders from within the Apollo 8 spacecraft, using a Hasselblad camera on 24 December 1968. The image soon acquired iconic quality. It was the first time a human being had been able to compose a view of the whole of planet Earth from space. Even though aerial views of buildings, cities, landscapes and bodies have always been within the human imaginary, allowing us to take perspectives beyond the technically feasible, this image provided photographic evidence of our living in 'a grand oasis in a vastness of space', as said by NASA astronaut Captain James A. Lovell in 1968 ('Explore Adler', n. d.). The image, taken outside of the Earth's sphere, troubled our understanding of being inside and outside of our planetary environment, stimulating reflections on the vulnerability of the planet itself. The images of the Apollo missions, the moon landing of 1969 and the popular pictures of the 'Blue planet' facilitated the 'ecologization' of futures research. The *Earthrise* images turned 'spaceship Earth' into the 'mythical figure of the environmental age'

(Höhler quoted in Seefried, 2011, p. 12). Cosgrove (1994) traces a cultural genealogy of the 'Whole Earth' images from the Apollo space mission in the late 1960s. For some, images like *Earthrise* became icons of our 'beautiful and small' planet encapsulating our planet as One-World, the world as integrated whole, while for others these images perpetuated an American Cold War imaginary of a world surveyed and dominated. The wider significance of space travel and our ability to send satellites into space prompted philosopher Arendt to reflect that to 'depart from the scene of the world' and 'to emancipate ourselves from its physical limits—gravity—meant also to emancipate ourselves from the gravity of its existential claims upon us' (Lazier, 2011, p. 602).

The 1950s and 1960s witnessed a period of unprecedented global economic growth and consumption with ecological consequences that increasingly attracted popular concern especially in the West. Sensitized to a growing sense of the vulnerability of the planet—'Only One Earth'— this was the era of the *The Limits to Growth* report (Meadows et al., 1974), a landmark in the history of modern environmentalism advocating zero economic growth to avert world 'ecocatastrophe' (Pepper, 1989, pp. 22–23). Sponsored by the Club of Rome, a group of Western industrialists, and instigated by Italian industrialist Aurelio Peccei, the 'Project on the Predicament of Mankind' aimed to foster understanding of the varied but interdependent components—economic, political, technical, natural and social—that interact and make up the global system (Meadows et al., 1974). The proposition: to achieve global equilibrium and 'to establish a condition of ecological and economic stability that is sustainable far into the future' (Meadows et al., 1974, p.24).

Based at MIT and led by computer scientists Jay Forrester and Dennis Meadows, the project used the new methodology of computerized models, based on systems dynamics, to investigate five basic factors that determined, so it was assumed, the limits to the rate and extent of growth at a planetary scale: accelerating industrialization, rapid population growth, widespread malnutrition, depletion of non-renewable resources and a deteriorating environment (Meadows et al., 1974). As Seefried (2011, p. 13) notes, the faith in predictive systems-modelling related to an ecologically inspired critique of growth, resulted in the

‘prophesies of doom’ of the early 1970s suggesting that exponential population and economic growth would lead to a world collapse within a century.⁴ The ‘standard run’ of the model was based on the assumption that nothing in social, political, technical or economic development would change.

The influence of *The Limits to Growth* may be attributed to its brevity, readability and visual appeal through its many graph illustrations (Seefried, 2011, pp. 32–33). Through the correlation of space and time, ‘every human concern can be located at some point on the graph, depending on how much geographical space it includes and how far it extends in time’ (Meadows et al., 1974, p. 20). It was assumed that every person had such a mental model, an ordered set of assumptions about a complex system, which could be plotted on their space-time graph. Critics of the project emphasized the limitations of such computerized system dynamics models. They noted the absence of a concept of humans as variable in their potentials and values (Cole, H., 1973, pp. 209–210), the conservative assumptions about the limits to technological innovation, the lack of attention to regional and social distribution and the interests of the multinational corporations represented in the Club (Pepper, 1989, pp. 22–23). Nonetheless, the study did draw attention to the need for social innovation, radical reform of institutions and political processes, including the ‘world polity’, with a world forum as first step for ‘joint long-term planning’ (Seefried, 2011, p. 18). Seefried (2011, pp. 32–33, 36) concludes that the long-term significance of *The Limits to Growth* lies less in its specific predictions than in its problematization of the value of economic growth and the ‘linear paradigm of progress and modernization’, resulting in a reconceptualization of progress in history as bound up with ecological aspects and ‘quality of life’. From the 1970s onwards increasing attention was paid to global structures of development and inequality as well as the possibility of other kinds of modernity, especially in the post-colonial context.

4. Seefried (2011, p. 13) further refers to Alvin Toffler, who described the coming ‘future shock’ as a result of technological and social innovations that were too dynamic, while the biologist Paul Ehrlich, who saw population development as part of the global ecological system, forecast a ‘population bomb’.

The Limits to Growth report, which has been evaluated in subsequent decades, was part of a wider environmental movement which developed in North America and Europe from the 1960s onwards. To remind ourselves: In 1968, Stewart Brand started to publish *The Whole Earth catalog*, a handbook for self-sufficiency—on its cover an image of the Earth seen from space. The catalogue functioned as a ‘counter-cultural’ archive, that embodied essential aspects of the American environmental movement, locating itself as mediating between ‘technological determinism . . . and hippie revolt (Franke, 2013, p. 13) and was the ‘Californian answer to the ecological challenges’ (p. 17). In Britain, *The Ecologist* magazine was co-founded in 1969 by Teddy Goldsmith, devoting an issue to the *Blueprint for survival* in 1972 and rallying against the ‘industrial way of life with its ethos of expansion’ (Vidal, 2012). Also in 1972, the United Nations Conference of the Human Environment in Stockholm initiated the intergovernmental United Nations Environment Programme (UNEP), which subsequently established its headquarter in Nairobi (Kenya). In 1971 a few individuals who believed they ‘could make a difference’ set sail on the fishing boat *Phyllis Cormack* to “‘bear witness” to US nuclear testing at Amchitka, a tiny island off the West Coast of Alaska’. These activists became *Greenpeace* (‘Our history’, n. d.). The first Friends of the Earth group was founded in San Francisco (USA) in 1969, before becoming an international organization in 1971.

Environmental historian J. R. McNeill (2010) describes modern environmentalism as a new force in the increasingly global culture and politics of the 1970s. It took shape in response to the ‘pell-mell economic growth in the Age of Exuberance’ (p. 278) and within a context of counter-culturalism and the emergence of new communications and monitoring technologies. With a renewed concern for global issues that required global scale co-operation, local movements also proliferated. Modern environmentalism thus influenced political life on local, national and international scales. In *An environmental history of the twentieth century*, McNeill (2000, p. 351) conceptualizes the environmental politics from the 1960s to late 1970s as a distinct phase. During this time environmentalism focused on pollution, but also resource exhaustion. Governments responded by creating new agencies charged with protecting the environment as a whole. The UNESCO

Conference on the Rational Use and Conservation of the Resources of the Biosphere in 1968 reviewed the ICSU-led (International Council for Science) International Biological Programme and the ongoing Man and Biosphere programme (MAB) was launched in 1971. Sweden hosted the first United Nations Conference on the Human Environment in 1972, to which the German Democratic Republic was not invited and which was boycotted by the USSR and Poland (McNeill, 2010, p. 275). McNeill (2000, p. 351) outlines a second phase around 1980 during which grassroots environmental movements, notably in Brazil, India and Kenya, began to affect national politics through either civil disobedience or official channels. These movements were embedded in social struggle. For the wealthy countries, environmental concerns focussed on tropical forests, climate change, acid rain and ozone depletion. This phase featured unprecedented efforts at international cooperation, requiring new institutions to deal with such problems at regional and global levels.

The understanding of 'systems' inspired new political movements for self-regulation and self-governance as well as countercultural movements and democratic protests against the interests of big business. The social movements of the 1960s and 1970s in North America exemplified a new participatory approach to politics with more militant forms of actions. The environmental movement was but one of the social movements that were characteristic of these decades: the feminist movement, the peace movement, the civil rights movement. Their innovative methods for politics were shared: marches and processions in opposition to pollution were influenced by civil rights protests; 'teach-ins' used by the anti-war movement became the model for the nation-wide Earth Day on 22 April 1970. About 20 million participants committed to planting trees, clearing up rubbish and protesting outside polluting industries. Global connections came increasingly into view. In an analysis of the transnational effects of the Vietnam war, which ended in 1975, historian Nguyen Lien-Hang (2010) correlates the shock of the war with the radicalization of social movements in the West. This is echoed by McNeill (2010, p. 265) who locates popular environmentalism in a context of countercultural critique as well as objections to the Vietnam war. Similarly, in 1977 Wangari Maathai founded Kenya's Green Belt movement, a grass-roots movement to counter

deforestation. Tree-planting as environmental action was not just beneficial for sustainable development; the planting of over thirty million trees in African countries worked for democracy, human rights and international solidarity. Maathai was awarded the Nobel Peace Prize in 2004 in recognition of her work in managing limited resources, practising good governance and promoting cultures of peace (Canney & Maathai, 2006, p. 35). In West Germany the environmental protest movement turned into the Green Party, formed in 1979 (Guha, 2000, pp. 79–81, 89), while in the German Democratic Republic (GDR) a network of independent libraries were founded by citizens from 1985 onwards to inform local residents on environmental pollution, energy politics and human rights. The *Umweltblätter* [literally: environment leaves] became the most widely distributed opposition magazine in the GDR (Liszka, 2009).

A more global sense of environmentalism was expressed in the report of the Brundtland Commission, *Our Common Future* (1987), which was sponsored by the UN. The report was based on a four-year enquiry into the relationship between environment and economic development. It offered a framework for ecologically sustainable development (McNeill, 2000a, p. 351). Following this, the International Panel on Climate Change was founded in 1988 and the global event of the UN Earth Summit took place in 1992. During the summit the United States of America made it clear that US lifestyles were not up for negotiation and Brazil insisted on its right to develop Amazonia as it wished, regardless of the implications of burning the world's largest rainforest. The Rio meeting crystallized the main fault line that divided rich from poor nations (McNeill, 2000a, p. 354).

2.4. Themes of the Anthropocene

In the discourse on the Anthropocene in the Earth sciences the place of the human within the Earth system is centre stage. But there are at least two Anthropocenes: one in the sciences, one in the humanities (Lorimer, 2017). The focus of the following discussion is on definitions of the Anthropocene and the work done by the concept in reconfiguring the human-nature relationship as an ontological question. The 'problem' of the Anthropocene—the environmental, political and philosophical issues the concept brings—has provoked much passion and controversy amid

scientists, within social and political sciences and within the intellectual zeitgeist of the humanities. Yet, as Descola (2013, p. 7) writes, 'a good way to understand the status of a scientific problem is to study controversies'. The controversies around the Anthropocene proposal give insight into not just the scientific issue, but also the cultural problems of human-environmental and human-to-non-human species relations.

Following the initial proposal to establish the Anthropocene as a geological epoch, the term has rapidly proliferated, kindling many associations and debates since the early years of the present millennium. Political scientist Luke (2013, p. 2) complains that the concept of the Anthropocene is in 'a state of continuous (re)manufacture . . . it is being made rather than discovered as more peak science networks are legitimizing and mobilizing the term'. How then can the Anthropocene be defined now? In the introduction to *The Anthropocene and the global environmental crisis: rethinking modernity in a new epoch*, Hamilton, Gemenne and Bonneuil (2015, pp. 2–3) outline three definitions of the term. Their first definition is the initial geological one, proposing a new epoch based on available lithological, paleontological and isotopic evidence found in sediments and rocks. The second definition comes out of Earth system science and includes detectable human influences, causing change in the Earth system. The evidence here is based on monitoring data from the Earth's spheres (i.e. lithosphere, hydrosphere, cryosphere, biosphere and atmosphere). The monitoring processes draw on a wide range of expertise (including climate science, global ecology, geo- and atmospheric chemistry, oceanography) assembled around a shared systems' perspective. In the Earth system science approach, the global system stretches from the Earth's core to the upper atmosphere. This definition thus goes beyond human influences in stratigraphy (as in the first definition). Evidence also includes sediment shifts, species extinction and the presence of artificial organic molecules. The proposition of 'planetary boundaries' that define safe operating spaces for humanity (Rockström et al., 2009), fits into this approach. Boundaries specify quantitative levels that pertain among other things to climate, ocean acidity, chemical balances, nitrogen and phosphorous cycles and stratospheric ozone density, the crossing of which might take the system beyond Holocene norms (Castree, 2014a, p. 441). This

second definition reflects a wider scientific shift away from geographical and ecological approaches (often thought of as local or regional), predominant in the twentieth century, towards an all-encompassing Earth-system approach (Hamilton & Grinevald, 2015). The third definition of the Anthropocene, summarized by Hamilton, Gemenne and Bonneuil, takes an even wider approach, focussing on a 'sharp change in the relationship of humans to the natural world' (p.3), which embraces, for example, landscape transformation, urbanization, resource extraction and disruption to natural processes by humans. Here, human and geological processes have become commensurable, so humans can be described as a 'force of nature' (p.3). Maslin and Lewis (2015) refine this statement by asserting, that the processes governing the Earth system are fundamentally the same now as in the past, but with the difference that 'human activity is a major force influencing the trajectory of the Earth system instead of all the usual non-human forces of nature' (p. 109). In this definition a plausible beginning of the Anthropocene can be in the reorganization of life on Earth with the arrival of Europeans in the Caribbean in 1492 and the subsequent global trade networks and resultant mixing of animal and plant life, known as the Colombian exchange, a geological, ongoing rearrangement of life without precedent (Lewis & Maslin, 2015).

Under all the definitions, and perhaps especially the third, the Anthropocene concept is associated with grand narratives of nature, post-nature and eco-catastrophe—all of which call for the social sciences and the humanities to partake in the discussion. It is important to note that the Anthropocene debate raises more than technical or evidential questions: it also has implications for the ways in which science is done, and the authority of particular disciplines. The authors of *Greenspeak* (Harré et al., 1999, pp. 11–12) refer to the work of sociologist Beck, in characterising the ambivalence of the discourse of the 'ecological epoch' as simultaneously scientific and critical of scientific approaches. Ecological discourse diagnoses and warns against the destruction of the environment. At the same time scientific standards of rationality are being dismantled. While Earth systems science has long been associated with interdisciplinary collaboration (hence the role of the International Geosphere-Biosphere Programme is itself designed to coordinate international research between 1987 and 2015), geological epochs in Earth history

are traditionally determined by experts in stratigraphy rather than, say, atmospheric chemists (Robin, 2013, p. 330). Furthermore, as argued by Bonneuil (2015) amongst many others, the Anthropocene proposal is not merely a biological or geological phenomenon, but also the product of particular belief systems, socio-technological trajectories and political-economic dynamics. In other words, while geologists define the Anthropocene in scientific terms and in relation to the stratigraphic record, the concept 'also embodies a sense of global limits, and both hopeful and pessimistic visions of society' (Bocking, 2015, p. 490). It is thus in the very nature of the Anthropocene to be also 'immensely productive of . . . extra-scientific questions' (Castree, 2014c, p. 464). Thus, the discourse on the Anthropocene has 'picked up velocity' (Stromberg, 2013), to put it mildly, creating a fertile ground for wider cultural and scientific experimental thinking on 'humanity's place in the global environment' (Bocking, 2015b, p. 492).

How then is the human, or the 'universalizing "anthro"' as Johnson and Morehouse (2014, p. 3) put it, conceptualized in the Anthropocene debate? Crutzen and Stoermer (2000) talk of humans in the plural as a 'significant geological and morphological force' (p. 17). Malm and Hornborg (2014) question the human species category in the Anthropocene narrative and draw out the historically specific forms of social and technological power, the *sociogenic* [emphasis in original]. To address social and racial inequalities, visual culture historian Mirzoeff (2016) critiques the unifying term of the Anthropocene with the descriptor 'white supremacy scene'. Equally, Crist (2013) calls for a 'blockade' of the term as it reproduces the notion of humanity's supremacy,⁵ whereas Latour's proposition is to use the potential of the Anthropocene as a 'metamorphic zone' in which new interactions between life forms emerge in a process of 'inter-agentivity'. The purpose: to allow for different, relational, encounters with nature and to 'de-anthropocize' interactions and encounters (Descola & Latour, 2013).

5. Others have developed contemporary variations of the shiny new term: 'Anthropo.scene' (a blog by geographer and environmental scientist Jeremy Schmidt); 'Anthroscene' (Parikka, 2014); or 'Anthropocenography', used in a lecture title 'Anthropocenography: On the coming cosmopolitical war' on 30 June 2013 at UC Davis Institute for Social Sciences by Brazilian anthropologist Eduardo Viveiros de Castro. Yet others want to purge the term from current language.

In May 2013, at a discussion event titled *The geological turn* in the artist-led project space Banner Repeater, located on Platform 1 of Hackney Downs railway station, paleobiologist Jan Zalasiewicz read a statement by Crutzen. The scientist posed the question of ‘what it means to live in this new Anthropocene epoch, on a planet that has been anthropocized at high speed’ and wrote:

For millennia human beings have behaved as rebels against a superpower we call nature . . . Albeit clumsily we are taking control of nature’s realm from climate to DNA. We humans are becoming *the* dominant force of change on Earth [emphasis in Zalasiewicz’s reading]. (May 2013)⁶

This short extract from a longer statement condenses some of the key tropes of the still provisional Anthropocene. Crutzen draws an arc from Earth system to molecular transformation through to the stumbling human. The narrative foregrounds questions of scale, a key theme in environmental discourse, and degrees of interventions, which are and have been discussed across the disciplines. The entanglements of the histories of humanity and nature reflect and contribute to ongoing debates in the social and political sciences, the humanities and the arts. Nature writer Robert Macfarlane (2016) echoes the references to scales in Crutzen’s statement:

If the Anthropocene can be said to ‘take place’, it does so across huge scales of space and vast spans of time, from nanometers to planets, and from picoseconds to aeons. It involves millions of different teleconnected agents, from methane molecules to rare earth metals to magnetic fields to smartphones to mosquitoes. Its energies are interactive, its properties emergent and its structures withdrawn.

Crutzen’s statement and the venue of its reading is a call for interdisciplinary collaboration, but how compatible are different methodologies, research agendas

6. The quote was transcribed from the video, available at Banner Repeater (31 May 2013). *The geological turn: art and the Anthropocene*. Retrieved from <https://vimeo.com/61877492> [accessed on 1 August 2016]. The event on 31 May 2013 was part of artist Gabo Guzzo’s residency at Banner Repeater that year. The artist invited speakers Paul J. Crutzen (who was unable to attend), Rasheed Araeen, Jan Zalasiewicz and T. J. Demos (chair). The residency resulted in a collaborative diagram exploring the characteristics of human nature and relations to social environment and capital, which led the artist towards the theme of the discussion.

and disciplinary histories? The Anthropocene concept has indeed congealed myriad enquiries on nature-culture relationships and has breathed more energy and perhaps some new ideas into these long-running debates. But to what extent does 'The new world of the Anthropocene' (Zalasiewicz, Williams, Steffen, & Crutzen, 2010) actually encapsulate something novel or different? Having introduced the main emphases of the Anthropocene thesis, I want to explore in more detail two dominant themes associated with the concept. The first is the explicit historical perspective of the Anthropocene, bringing together natural history and human history in an integrated narrative, which turns crucially on questions of evidence and intervention. In reference to species extinction, for example, Latour (quoted by Orr, Lansing, & Dove, 2015, p. 156) asks, 'How can we simultaneously be part of such a long history and yet be so late in realizing what has happened?' The second narrative that gives the Anthropocene concept its particular shape is described by Bonneuil (2015, p. 26) as a 'post-nature' narrative, defined by its relation to notions of modernity and nature: 'it constitutes the new spirit of modernity, based on a hybridist, relational and connectionist ontology'.

Beginning with the first narrative, calling for a deep historical perspective, the implication of the Anthropocene is to think natural history and human history together, but now with an explicit awareness of 'causative human agency' (Lowenthal, 2015). In contrast to Hamilton and Grinevald (2015), who insist on the absolute novelty of the Anthropocene concept in the context of the 'radical rupture' represented by Earth system science, I am interested here in possible precedents for Anthropocene thinking in earlier eras. Steffen et al. (2011, pp. 843–844), for example, revisit perceptions of human impact on a global scale through a 'line of thought, [that] even before the golden age of Western industrialization and globalization, can be traced back to remarkably prophetic observers and philosophers of Earth history'. Italian geologist Antoni Stoppani (1871) thus referred to the 'anthropozoic era' in *Corsa di Geologia*, as referenced by Crutzen (2002). Similarly, George Perkins Marsh (1864) in *Man and nature; or physical geography as modified by human action*, and Robert Sherlock (1922) in *Man as a geological agent: an account of his action on inanimate nature* considered the role of humans as in a sense forces of nature. Meanwhile, philosophers Vernadsky and Teilhard de

Chardin, reflecting on the increasing technocratization of human society, introduced the term 'noösphere' to account for the increasing impact of humankind; 'man acts here not as *homo sapiens*, but as *homo sapiens faber*' (Steffen et al., 2011, p. 845). Still more famously, James Lovelock and Lynn Margulis introduced the Gaia hypothesis of the coevolution of Earth, climate and life in the 1970s, which, to the proponents of the Anthropocene thesis, provides another 'global conceptual framework for human influence on biogeochemical cycles' (Steffen et al., 2011, p. 845).

Anthropocene discourse frequently returns to issues of deep time and temporal rupture which have long featured in considerations of human-nature relations. In *The climate of history: four theses* (2009; 2014) historian Chakrabarty situates humans in the 'now' of the climate crisis as a point from which to develop new perspectives on human history, mapping out three histories over differing timescales. 'History 1' is that of the Earth system over about 4.6 billion years, its climatic fluctuations, tectonic plate movements, ocean currents and meteorological events. 'History 2' is the evolution of life on planet Earth for about 3.8 billion years, in which we participate—late in this history—as a species. Both histories are vast, produced through slow processes operating at various speeds over various time scales. These 'megahistories' take place on 'inhuman scales. We know about them cognitively; we can suffer their specific impacts and can create metaphors of various kinds to develop affect about them' (2014, p. 248). While they are not immediately available to us experientially, we can access them through research. From the 1800s onwards humans began to exploit fossil fuels: coal, 'the most offending fuel' (2014, p. 250) and oil. Our profligate use of the Earth has contributed to human flourishing, making humans actors in these 'megahistories' within a short period of time. Humans have become geophysical forces in their own right, which paleoclimatologist David Archer, quoted by Chakrabarty, describes as 'becoming a force in climate comparable to the orbital variations that drive the glacial cycles' (2014, pp. 248–249). Humans thus increasingly come to define and participate in both histories, as a geophysical force influencing the Earth's history, and as a species in History 2. We bring about changes through collective activities over scale, time and space, eventually creating a third history of industrial

civilization—or capitalism as Chakrabarty has it. This ‘History 3’ then links the history of the Earth and the history of evolution through a fossil-fuelled history of civilization. Chakrabarty does not directly consider here the history of civilization independent of fossil fuels—in particular the beginnings of agriculture—nor the energy derived from nuclear power. Concentrating on fossil fuels, i.e. coal and oil, highlights however the principle of connections between the human history of resource exploitation and its unintentional consequences, and planetary and evolutionary histories.

How are these histories available to us? Chakrabarty describes History 1 and History 2 as accessible through our shared, evolved human capacity to experience space and time—but both histories posit conceptual timescales that cannot be directly and individually experienced, though we clearly participate in History 2 as a species,⁷ putting pressure on other species (2014, pp. 249–250) some of which have become extinct within living memory, such as the Passenger pigeon (*Ectopistes migratorius*). The death of the last of its kind, Martha, is recorded as being around 13.00h on 1 September 1914. Humans hunted the species to extinction (Freeborn, 2014). Another example of recent, rather than living memory, is the extinction of the Great Auk. Artist Marcus Coates made the abstract sculpture *The Great Auk and Egg* (2011) about this bird. The work is shown together with an account of the species extinction. The artist quotes from Ellis (2004): ‘The last pair (Great Auks), found incubating an egg, was killed there (Eldey Island, Iceland) on 3 July 1844, with Jón Brandsson and Sigurður Ísleifsson strangling the adults and Ketill Ketilsson smashing the egg with his boot’. The artist brings together the abstract sculpture with Ellis’ emotive and specific narration. In his own words on the accompanying label text, Coates is adamant that to abstract a species is to ignore the individual, without which humans struggle to find empathy.

Chakrabarty’s three histories depend on different sorts of archives in which data can be found and require different analytical methods through which these histories can be constructed. The above examples of two bird species as related to humans give some sense of these different archives: archival records of extinction,

7. Chakrabarty here uses ‘species’ as a practical biological concept, while acknowledging some attendant philosophical problems (p. 247).

natural history museum collections and artists' projects embodying extinction scenarios. The creation of meaning here depends on 'our capacity to re-enact in our own minds the experience of the past' (Chakrabarty, 2009, p. 220). Thus, Chakrabarty concludes, the discussion about the crisis of climate change can 'produce affect and knowledge about collective human pasts and futures that work at the limits of historical understanding'. Critically, he continues, 'we experience specific effects of the crisis but not the whole phenomenon' (p. 221).

In my summary above of the second Anthropocene narrative—foregrounding its relation to modernity and notions of nature—the emphasis is on the human capacity for intervention and transformation: nature is a 'raw material that can be changed into what the human mind wants it to become' (Harré et al., 1999, p. 94). Evidently the meanings associated with nature vary widely across time and space. The idea of modernity is often defined in opposition to nature or more specifically as ushering in the means of controlling nature; however Gandy (2014, p. 1) highlights the 'ideological ambiguities of nature under modernity'. Across many humanities disciplines, nature is thought of as a more or less an 'arbitrary rhetorical construct' (Morton, 2007, p. 22). Narrative forms, representations, belief systems and systems of natural knowledge, it is often argued, have 'less to do with nature than with human discourse' (Demeritt, 1994, pp. 27–29). The concept of nature as developed for example in ecology and environmental management has frequently been freighted with ethical and political meanings (Bocking, 2015, p. 490). Or, as Tansley (1920, p. 120) put it nearly a century ago, 'our concepts are creations of the human mind which we impose on the facts of nature. . . . [T]hey are derived from incomplete knowledge, and therefore will never exactly fit the facts, and will require constant revision as knowledge increases'. Central to Western European thought is the idea of nature as simultaneously an ontological backdrop for human activity, a stage, and also a resource to be exploited economically. Sloterdijk (2014) in his essay 'The Anthropocene: a process-state on the edge of geohistory?' conjures up nature as separate from the human theatre, in which:

the human being is the dramatic animal standing on stage before the backdrop of the mountain of nature, which can never be anything

other than the inoperative scenery behind human operations. The thinking rooted in this backdrop ontology also remains virulent long after the beginning of the Industrial Revolution, even though the backdrop of nature is now construed as an integrated warehouse of resources and universal dumping ground. (p. 265)

Separation from nature, nature as a foil for human activity, goes hand in hand with the imagination of nature as pure and untouched by humans. Consequentially, we are now in an age of the end of such pure nature. As early as 1990 environmentalist McKibben (1990) declared the 'end of nature'. A quarter of a century on, political theorist Arias-Maldonado (2015) evoked the same sentiment in his essay 'Spelling the end of nature? Making sense of the Anthropocene'. How can the void left by the absence of 'Nature'—with an upper-case letter to indicate its alienation (Lorimer, 2012)—be filled? In the attempt to acknowledge the full extent of the human impact on nature—not just its conceptual construction, but the construction of the natural environment itself—nature has become re-thought as 'nature-after-nature' or as 'post-nature'.

Anthropocene discourse thus urges us to re-think the relationship between human and non-human nature. This relationship raises questions about the constellation of non-human time and geological materialities across non-human worlds (Yusoff, 2014) and about cultural relationships between humans and non-humans within a shared environment. Such issues of relationality across the natural and the social have long been addressed by a variety of cultural theorists, philosophers and activists. For example in a series of works, Latour (1993; 2011; 2014) has considered the relations between nature, science, technology and society, focussing especially on the insufficiency of the nature-culture binary as a way of describing modern society. He argues for the replacement of the category of 'nature' by a plurality of 'socio-natures', assemblages of ideas, people and things that are constantly undergoing change. These ideas have been particularly influential within human geography, where researchers have highlighted concepts of hybridity, inter-species 'conviviality' and the 'more-than-human' (Whatmore, 2005; Hinchliffe & Whatmore, 2009). Urban nature has been reconceptualized in terms of the nexus of entangled relations between the human body, 'metropolitan

nature’ and socio-technical networks (Gandy, 2006, p. 504). Definitions continue to proliferate, as theorists seek to highlight different aspects of the story: Sloterdijk (2015, pp. 259, 358) thus suggests the terms ‘Eurocene’ or ‘Technocene’ to describe the dominance of European industrial and technological forces which have transformed ‘the process of metabolic interaction between human beings and nature’. Meanwhile Haraway has written extensively on the production of nature in more ideological terms, using the terms ‘Capitalocene’⁸ and ‘Plantationocene’⁹ (Haraway, 2015, pp. 162–163) to evoke the ‘devastating transformation of diverse kinds of human-tended farms, pastures, and forests into extractive and enclosed plantations, relying on slave labour and other forms of exploited, alienated, and usually spatially transported labour’. Haraway (2015, p. 160) proposes a new ontology and calls for ‘rich multispecies assemblages’, that include people, in the ‘Chthulucene—past, present, and to come . . . [that] ‘entangles myriad temporalities and spatialities and myriad intra-active entities-in-assemblages—including the more-than-human, other-than-human, inhuman, and human-as-humus’. In this proposition Haraway and others create discourses that are post-anthropocentric, non-human-exceptionalist and post-individualist to interrogate the co-becoming of material existence (Demos, 2017, pp. 87–88).

The idea of the Anthropocene thus needs to be placed in the wider context of efforts by theorists and historians to re-think and re-imagine human-nature relations. Clearly, from its inception within the realms of natural science, the Anthropocene concept has ignited a political debate in the humanities that has increasingly questioned some of its universalising assumptions. This array of alternative propositions demonstrates the ambiguity and plasticity of the Anthropocene concept. It can mean different things to different audiences (Bocking, 2015, p. 491).

8. The term ‘Capitalocene’ was initially coined by Andreas Malm and Jason Moore (see Haraway (2015, p.163). ‘Anthropocene, Capitalocene, Plantationocene, Chthulucene: making kin’. *Environmental Humanities*, 6, 163. Retrieved from <http://environmentalhumanities.org/arch/vol6/6.7.pdf> [accessed on 17 June 2017].

9. The term was generated collectively by participants of a recorded conversation for *Ethnos* at the University of Århus in October 2014 (Haraway, 2015, p. 162).

3. Archives: textual, material, embodied, performed



Figure 3.1. Mikhail Karikis *Children of Unquiet* (2014) [Video still].

The video is part of a multi-part project encompassing video, photography, sound installation and performance, centred around a children's 'takeover' of an abandoned workers' village near Larderello in Tuscany.



Figure 3.2. Mikhail Karikis *Children of Unquiet* (2014) [Video still].

Hot steam rises from fissures in the metamorphic rock in the Devil's Valley in Tuscany, Italy. The valley is known for inspiring the Italian poet Dante Alighieri's fourteenth-century description of his journey through *L'Inferno* [hell], the first part of the epic poem *Divine Comedy*. Here, however, forty-five primary school children dressed in bright colours—orange, purple, yellow, or pink—stamp their feet in unison. The children are singing, running, reading aloud from a book, playing ball in a disused factory. Now they are lying on the sunlit grassy ground, their heads resting on a pipe of industrial scale. These sketchy scenes are from Mikhail Karikis' film *Children of Unquiet* (2014). The film is set within the environs of the world's first geothermal power plant built in Larderello, Italy in the early 1900s. The sustainable energy production generated from the geothermal field is still used for industry, greenhouses and residential homes today. But the modernist industrial village architecture, which once offered home to the plant's five thousand workers, is now abandoned. The introduction of automated technologies in the power plant resulted in unemployment and rapid depopulation. For Karikis' film, local children whose families once lived in the area or laboured in the factory were asked to reanimate the village and the disused factory. A geologist of about 80 years of age,

who used to work in the factory, spoke to them about this place and its history. His stories elicited an affective, playful and physical experience of a present place, to trace its past and to imagine its potential futures (Karikis, 2015). In the film, children imitate the sound of hissing steam, the subterranean rumbles and the drumming sound of the factory's pipes. To Karikis (b. 1975, Thessaloniki, Greece) the film's story transforms the ruins into something hopeful. The children are articulating both cultural memories and actual sounds of the place, which they inhabit momentarily. Their vocalizations create a sonic portrait of a changing industrial and economic landscape. Its history is experienced through the place's industrial ruins, the volcanic activity, through oral history and sensory experience. Each child participant seemed to sense the Earth and the transformation of its geothermal heat as a resource in a play of call and response to the sounds of the Earth, articulating this place afresh.

Karikis' work provokes the children to become sensitive to the Earth by listening and by creating an aural response. The film shows the environment as archive in which the traces of human-made structures are overlaid onto geological layers. The human body interacts with the Earth's natural and human-made structures through somatic experience. These interactions are shared and remembered. *Children of Unquiet* exemplifies the expanded formulations of the archive in understanding the environment as archive. The work also proposes the human body as archive through oral history, bodily memory and mnemonic processes, i.e. the processes of memory in relation to the domestic and industrial spaces of the site.

In this chapter, I further develop the conceptual and methodological framework for the argument of this thesis and the case studies to follow. I begin by exploring what makes an archive, its constituent materials and evidentiary records as well as the role of the archive in the making of history. This is followed by a discussion of archival procedures and structures to give examples of how artists may perform the archive. Every archive affords opportunities for dynamic reinterpretation and interaction through the materials it holds, which can gain new meanings and presence through being performed. Processes and motivations for re-using the archive are discussed in the following section which considers re-enactment and its

role in the construction of history; then I develop this particular concept in the context of the use of archives in artworks, paying special attention to the medium of photography. As documentary source and artistic medium, photography plays a central role in all the case studies. The concluding section explores the use of montage as a structural device to connect heterogeneous materials from different temporal and spatial contexts.

3.1. The archive

Archives are transitional phenomena. What are the selection criteria for something to be located within an archive or to remain outside of it? The beginning of an archive is difficult, if possible at all, to determine. Just as 'forewords are afterthoughts' (Rheinberger, 1997, p. 11), archives often are retrospectively constructed, often out of rather arbitrary materials, like private correspondences, personal archives, the cast-offs from scientific or technological processes. Processes of identification, sorting and the seeking out of complementary information to read the archive are ongoing. These are attempts to create systematic knowledge out of fragments. Archives are not static, in particular when archival objects are related to other archival objects and documents in the same or other archives, or not-yet-archived collections. In what follows, I seek to characterize the archive further by describing its materiality, its decay and conservation, how archives embody the politics of history and the archive as foundation for the study of nature.

There is constant fear of losing the archive's materials through decay, which can impact on legibility and handling, the readability of languages and obsolescence of data-retrieval technologies. Material objects in the archives remind us that materials, information and knowledge can be lost, but are equally sites for discovery and epiphany. In the description provided by art historian Krzysztof Pomian, the archive,¹⁰ just like collections, contains 'extremely heterogeneous objects . . . in private homes and public buildings alike' (Buchalski, Konarski, & Wolff

10. Pomian quotes from an entry in the *Polish Dictionary of Archives* (1952), which describes the archive as 'an institution called upon to guard, collect, sort, preserve, keep and render accessible documents which, although they are no longer useful on a daily basis as before, and are therefore considered superfluous in offices and stores, nonetheless merit being preserved'. (p.9)

quoted in Pomian, 1990, pp. 9–10). The collection must satisfy the following criteria: ‘a set of natural or artificial objects, kept temporarily or permanently out of the economic circuit, afforded special protection in enclosed places adapted specifically for that purpose and put on display’. Pomian excludes exhibitions from this category of collection, as they present only ‘the briefest moments of time in the process of circulation or production of material goods’. He also excludes objects ‘thrown together’ by chance. Pomian (1990, p. 10) describes a process of removal of natural and artificial, or human-made, objects from economic cycles and their re-contextualization into a different value system, thereby creating archives, consolidating ideas and making objects and documents accessible. The object’s use changes from its original function to ‘being looked at’, owned for aesthetic pleasure, historical and scientific knowledge and the prestige it affords.

For the present study, however, moments of exhibition as well as histories of provenance, including chance, are integral to the conception of the archive as engaged with by artists. Pomian characterizes a collection as by definition outside of the economic circuit of use value and exchange value. I am here concerned with the changing use and epistemological value of the archival object. With irony artist Elizabeth Price struck this very chord in the narrative of her video *A RESTORATION* (2016), installed within the Ashmolean Museum Oxford.¹¹ In the video the synthetic voice of an anonymous museum administrator states: ‘Of all the things we collect, not one was made for a museum. Many were created with conservation in mind’.

There are myriad ways in which objects come to be removed from their circuits and contexts and are re-evaluated, re-used, interpreted and re-interpreted. Furthermore, archival situations, their contents, contexts and organizational systems are themselves malleable, idiosyncratic and changeable. Archives present themselves as authoritative, they are a place for political and national imagination. Such political authority can be embodied in the archive’s architecture, its laws, administrative practices and user access. Declaring something to be an archive sets up relations between what is declared official and visible and, by that same process,

11. Elizabeth Price *A RESTORATION* (2016), exhibited in Gallery 33 at the Ashmolean Museum of Art and Archaeology, University of Oxford (UK), 18 March to 15 May 2016; Retrieved from <http://www.ashmolean.org/exhibitions/arestoration/> [accessed on 3 August 2016].

what is made invisible, secretive and left out. Acquisition into and interactions with the archive can thus be political. Through the work of Michel Foucault, in particular *The archaeology of knowledge* ([1969] 2002), the ‘archive . . . its modes of appearance, its forms of existence and coexistence, its system of accumulation, historicity, and disappearance’ (pp. 146–147) became theorized as processual. The archive of a society or culture has since become thought of as revealing ‘the rules of a practice that enables statements both to survive and to undergo regular modification. It is the *general system of the formation and transformation of statements*’ [emphasis in original] (p. 146). These statements are operations, neither entirely linguistic, nor exclusively material, that cut across and reveal structures and their concrete contents (pp. 97–98). In Foucault’s formulation, they are elementary units of a *discursive formation* (such as natural history or economic discourse), which describe the relations between institutions, techniques, social groups and perceptual organization [emphasis in original] (p. 121). This system of statements (whether events or things) Foucault called an *archive* [emphasis in original] (p. 145).

The material archive is defined by its physical limits and what it does contain, but at the same time embodies the impossibility of a comprehensive archive through what has been left out. Its omissions highlight that which cannot be archived because of loss and catastrophe. Its margins can be frayed. Performance theorist Rebecca Schneider (2012) considers the archive as habitual to western culture: it allows us to understand ourselves in relation to what remains, to our material traces. At the same time Schneider expands this interpretation to the archive as an instrument for producing, regulating, maintaining and institutionalizing loss.

The archive needs to be understood as an unstable foundation for any enquiry. Its character is fragile and indisciplined (Blaschke, 2016). It is contingent on cultures of collecting, storage and conservation. It contains moments of knowledge, but is never complete. In the context of history as it has been practised over the last century through evidence and argument, the idea of the archive and archival investigation is associated with particular protocols. The historians’ conception of archives, in contrast to Foucault’s, is above all concerned with archives as sources—

and often unreliable sources at that, requiring forensic examination using the skills of historical scholarship. Consequentially, we have come to apply caution when working with archives. As archivist Terry Cook (2000, n. p.) suggests, archival science and new conceptual paradigms for the profession in the new century mean 'process rather than product, becoming rather than being, dynamic rather than static, context rather than text, reflecting time and place rather than universal absolutes'. In modern historical scholarship, we are made aware of the 'deception of the archives', the 'disappeared documents and distorted reports', thereby conceiving of archives as 'less monuments to the absence or ubiquity of knowledge than its piecemeal partiality' (Stoler, 2009, p. 18). That is, if we have archives of documents and things in the first place. There is also secrecy, concealment and absence through deliberate destruction of archives to impede the writing of history in colonial and post-colonial worlds (Anderson, 2015), or to obscure dictatorships, notably as in the clandestine partial destruction of the State Security archives of the former German Democratic Republic by the ministry's own staff. The fragmented material is now, following the end of the regime, in the process of being manually and virtually reconstructed ('Reconstruction', n. d.).

The study of history and of nature both rely on archives: history relies on material objects and documentary records and the natural sciences on objects from nature. Perceived through the archive as repository, research in both areas needs to be aligned and understood as cultural practice. Literary historian Adriana Craciun (2014, p. 2) asks new questions of archives that are changing and for which we lack 'clear precedents, categories, or univocal cultural vocabularies'. In her essay 'Franklin relics in the Arctic archive', she reads the 'fall-out' of the expedition as an incidental archive shaped in its material contents through the Arctic as an imaginary and frozen archival site. She further examines the contemporaneous Victorian records, the subsequent and the present archival contexts and how they are made to fit political and cultural agendas. Craciun's work imagines what archival collections can be, where their materials might be found, who authorizes such materials to become a collection, their value and usage, and the continuing and changing interpretations of such assemblages. Her expansive thinking about what makes an archive informs the interpretation of the case studies presented in this

thesis, in particular the relation between material objects, matter such as soil and landscape.

Within institutional archives, material objects and the processes woven around them are held within particular spatial and temporal situations. I suggest that these configurations of objects gathered together in archives offer multiple interpretative readings, because they operate at the 'margins of categories and ways of display', as described by Dias (1997, p. 33). What comes to our attention when we study these archives: their forms, their contents, their organizational system? What are the values and usages of the objects suspended within an archival framework? Chakrabarty (2009) suggests that new questions for the interpretation of archives of environmental change are required. These new questions are prompted through the Anthropocene hypothesis, which recognizes significant human impact on the geo- and biophysical, or inhuman processes of the Earth. These archives are mined by contemporary artists, because they hold renewed potential for probing the 'margins of categories' and finding new conceptual frames in the context of environmental change, including those of the Anthropocene concept itself.

Kariki's *Children of Unquiet* connects the study of history and the study of nature. The children in Larderello practised to interact with the Earth and to experience the historic human exploitation of warmth. Personally, I was captivated by the poetics of this 'sensuous human activity' (Denning, 1996, p. 47) and its earnest pleasure in learning, being and imagining. Oral history and memory created access to the history of this place for these children. Performing within this place became a sequence of interpretative acts to relate to history. Historian Greg Denning (1996, p. 44) describes capital-H History as an interpretative act through which past and present are bound together. In his view, histories are the product of a dialectic between discovery and invention. Such dialectics form a poetic for Histories, brought about through the friction between evidential history and the fictions created. Denning (1996, p. 41) imagines 'histories' as 'ways of knowing what happened in the past . . . [which] are described by their systems of expression, their processes of communication, their relationship to shared experience. The social and aesthetic rules of how 'we and others make sense of the past—reminiscence, gossip, anecdote, rumour, parable, report, tradition, myth [make] histories of

different sorts' (p. 37). In the artists' case studies these histories are expressed in tableaux, journeys and visual chronicles.

3.2. Performing the archive

Artists can make use of performance, not simply in the sense of theatre, but as acts to animate and interpret the archive in historical terms (Schneider, 2012). In the artists' case study projects, friction between evidential history and fictions can be observed and is often deliberately emphasized through the performative process of retrieving histories and creating new ones. In this section I explore engagement with archives through various approaches by historians, scientists, curators and artists, after first specifically re-thinking who archives are for and how they can be opened up. I draw together various disciplinary approaches to engage with archives and their contents, systems, materiality and societal contexts. I de-exceptionalize artists' approaches and place artistic practices into a wider societal and cultural frame. The focus in this thesis is however on artists working with and producing archives, specifically those holding information on environmental change.

Driver and Jones (2009) have drawn attention to the 'hidden histories' in the archives, requiring recalibration of research instincts and skills together with new forms of research output. Archives need to be re-imagined in the context of more 'participatory models of knowledge creation' and new forms of public engagement, employing a 'geography at large', as proposed by Driver (2010; 2014). Inspired by historian Raphael Samuel's notion of 'history at large', this historical geography is to 'allow for more diverse interpretations' and to signal 'an openness to new forms of knowledge and experience outwith the walls of academe' (2010, p. 243). A widened conception of the archive has thus been deployed to challenge canons and to see history from a variety of perspectives and positions. Photographer and theorist Allan Sekula (1986, p. 10) brings into view the archive and its 'shadow archive' to draw attention to the processes of selection and de-selection of individuals from an entire social terrain through archival photography. Historian and geographer Laura Cameron (2014, p. 100) reviews the rationale and experience of activist engagement with the archive in the search for new forms of collaborative research, particularly in the Canadian context, in which the voices of indigenous peoples have

often not been heard. In combination with the methods of community and oral history, archives may potentially be transformed from 'self-contained repositories' to 'webs of connections and opportunities for dialogue' in the search for environmental justice and human rights. Archive scholar Andrew Flinn (2011) shows how 'archival activism' by independent and community-led archives supports radical public history and the writing of heritage. With personal commitment and involvement geographer Caroline Bressey (2014) describes the radical histories from below in her own and community-based scholarship for British Black History and the Black Cultural Archives in South London.

These moves to widen and re-animate archives have extended well beyond the discipline of history itself into the field of archival activism and activist art. Artists and curators now create archives as platforms in order to circulate their work beyond the realms of market-driven and canon-driven art history. Art educator Aida Sánchez de Serdio Martín (2016) refers to these initiatives as 'alter-institutionality, [which] is based on a shift away from hierarchical, top-down and "broadcast" based models of knowledge dissemination'.

To counter-balance a geographical purview focused on European practices, other examples include the Sri Lanka Archive of Contemporary Art, Architecture & Design ('Raking Leaves', n. d.), the Asia Art Archive ('AAA', n. d.), based in Hong Kong; or archives and artists' works set against the function of the state as surveyed in *Dissonant Archives: contemporary visual culture and contested narratives in the Middle East* (Downey, 2015). The platform L'Internationale online ('L'Internationale', n. d.) is at present a confederation of six major European modern and contemporary art institutions to create 'a space for art within a non-hierarchical and decentralized internationalism, locally rooted and globally connected'. Its journal *Decolonising Archives* presents the archive as a 'contested site' of history and 'site of resistance'. Journal subjects include environmental aspects of climate change and 'more-than-human collectives', connecting environmental justice with the artistic deployment of the archive. In collaboration with museums world-wide, the Cuban artist Tania Bruguera has developed a related project entitled *Arte Útil*, ('Arte Útil', n. d.) which replaces 'authors with initiators and spectators with users'; it seeks to 'pursue sustainability' and to 're-establish

aesthetics as a system of transformation'. The effectiveness of such projects is a matter for further discussion: what matters in the context of this brief review is the emphasis placed by such artists on interrogating the contents, form and function of the archive and its diverse users, especially in the context of environmental activism.

'Reading the archive is one thing; finding a way to hold on to it is quite another' (Farge, 2013, p. 15). One of the pleasures of the archive stems from the materiality of its objects and their potential for affect. Historian Arlette Farge vividly narrates the excitement of venturing into the unknowns of the archive to uncover hidden information in the eighteenth-century judicial records of the Archives of the Bastille. Stained by 'cold dust', this 'worn-out looking bundle tied together with a cloth ribbon, its corners eaten away by time and rodents', is put back to militant use by Farge, the documents acting 'as witnesses once again' (2013, pp. 1–3). Material durability and decay within the archive are continuing issues from one time period to another, from one archival structure to another, from one media platform to another. Working on the residual material culture at an abandoned homestead in Montana, Caitlin DeSilvey (2007, pp. 880–881) grapples with the 'chaos of material memories' to ask how do 'we order unruly materialities through our strategies of collection and curation' and how do 'these materialities work back on our ordering principles to suggest other ways of knowing and doing?' She struggles with the 'waste' objects: 'What was I to do with a pink paper napkin, partly consumed by rodents, on which someone had recorded the names of the people who attended a picnic up Nine Mile Creek one summer afternoon?' DeSilvey's curatorial work became marred by 'a kind of semiotic thinning . . . for these objects to behave appropriately in the archive' to be 'decontextualized and catalogued . . . in their file boxes and labelled crates' to acquire 'socially produced durability'. For her work DeSilvey sought inspiration from artists' takes on the archive to manage an unruly and bewildering heap of materials and to formulate a collecting and conservation approach. Andy Warhol's *Time Capsules* (early 1960s to his death in 1987) are monthly collections of incidental, everyday objects, gathered in standard archival record keeping boxes—a pertinent precursor to DeSilvey's archival project. Art historian Hal Foster in 'An archival impulse' (2004, p. 5) echoes this 'recalcitrantly

material' quality of archives and their idiosyncratic characteristics as 'fragmentary rather than fungible, and as such they call out for human interpretation'.¹²

In the presence of materials, mice and dust, artists and curators find in the archive an experimental field for the interrelations between materials, human and non-human agency. To consider materials: art historian Petra Lange-Berndt (2015a) asks us to follow the materials through artists' practices and through these to engage with other disciplines. She surveys anthropological, art historical and philosophical approaches to matter, material and materiality as analytical tools in and for the analysis of artists' works, and refines them through the categories of political and societal power relations, the natural and post-natural. The above-mentioned archival and pre-archival situations—when does the archive begin?—offer the possibility of subjective readings and experiences of materials understood as having histories and agency in themselves. In this view, materials call forth interpretations and sensory experiences and demand behavioural and social actions. The record of interactions between materials, humans and non-humans indicates expectations towards appropriate performances in relation to the material thing (Edwards, 2012) and the struggle for new ways of imagining those interactions. In the spirit of following the material, Lange-Berndt (2015b, p. 16) suggests a methodology 'to situate artistic practices within historical perspectives and to open the meanings of the materials used to their everyday or non-art connotations'. This approach then begins a journey into the engagement with artworks through other disciplines and with experts in an entanglement of encounters.

The etymologies and definitions of matter and material and the more recent term 'materiality' are numerous. Anthropologist and photography historian Elizabeth Edwards (2012, p. 230) applies the debates on materiality to photographs as 'profoundly social objects of agency' that need to be understood within the 'social conditions of the material existence of their social function—the work that they do'. She uses the idea of 'placing', which refers to the work the photographic object does in a social space, framed by questions of 'materiality, adjacency,

12. In reference to the archives of the Internet and electronic networks, Foster (2004, pp. 4–5) makes a distinction between machine-processing and human-processing.

assemblage, and embodied relations . . . as well as the material translation of a photograph from one kind of object to another, and from one purpose to another' (2012, p. 226). Photographic materials are key to the case studies examined in this thesis: glass negatives, photographs as mementos and evidence, and as reference and documentation. In their materiality, they register various kinds of practice and relationship: and far from being immutable, they themselves are caught up in processes of change: decay, particularly of the emulsion layer, preservation, re-printing and digitization. Here Ingold's definition (2012, p. 439) of materiality is useful: 'matter considered in respect of its occurrence in processes of flow and transformation'. Ingold (2012, pp. 434–435) echoes the 'ongoing historicity' of matter by suggesting that 'to understand materials is to be able to tell their histories . . . in the very practice of working with them. . . . Materials, thus, *carry on*, undergoing continual modulation' [emphasis in the original]. The archival materials themselves thus reflect the transitional quality of the archive and create a productive instability. Social interactions with archival materials, knowledge-seeking and experiential processes all contribute to the making of and engaging with an archive. In the case study projects, the artists work with historic scientific archives, with the environment as archive and others artists' work. They use myriad materials and social interactions in the making of their work. The works are 'metamorphosing as a result, without ever solidifying into . . . an absolute body of knowledge' (Didi-Huberman quoted in Rübel, 2015, p. 100).

It is useful to situate contemporary artists' concerns with collecting in a longer history of engagement in the making of archives and libraries to illustrate the quality and properties of materials and their organizational systems. From the 1960s and 1970s onwards artists have engaged with archives, but also with the study of natural systems. The collecting of materials from or relating to the natural world, forms of collecting, presentation and display are discussed through some recent examples in what follows. Here, I examine how artists create new forms for archiving the natural world or re-perform existing archival structures. Contemporary artists concerned with archives and the natural world have created whole libraries with natural materials such as water, wood or rock as durational art

projects. The projects are exemplary for their entangling of different cultural forms used to 'collect' nature within the arts and the sciences.

In Iceland artist Roni Horn has created *Vatnasafn / Library of Water* (2007–ongoing) for 'water, words and weather reports' ('Horn', 2007). The library holds 24 glass columns containing glacial water, some from Iceland. In Katie Paterson's *Future Library* (2014–2114) the artist grows a forest in Norway. In 100 years the wood from the trees will be used to make paper. This paper is to be used to print books of the stories that the artist commissioned by literary authors. These stories are to be kept secret until their publication in 2114 ('Paterson', n. d.). While some artists create their own archives and libraries and rules for collecting, others re-work existing archives to create new art objects. In 2012 Mark Dion created a new display architecture for the *Schildbach Xylotheque*, a 'wood library' crafted by Carl Schildbach from 1771 to 1799, which is now kept in the collection of the natural history museum in the Ottoneum in Kassel (Germany). This unique collection consists of 530 books made from 441 local trees and shrubs. Each book is crafted from the wood and represents the individual tree's life cycle through dried plant parts and wax replicas, together with information on habitat and economic use. Dion created a hexagonal oak structure in reference to Joseph Beuys' *7000 Oaks* (1982–1987) art project in Kassel (Documenta, 2012, p. 204). Dion's work evidences the materiality of trees through the trees' materials themselves. These exemplary art projects work with natural materials in order to join the archival impulse with a conservation impulse for preservation and sustainability of the natural world.

American sculptor David Brooks worked with an archive of geological rock cores. The archive turned out to be an archive within an archive within an archive at the Austin Core Research Centre (CRC) of the University of Texas, USA. The hangar-size warehouse space contains an archive of more than two million rock core samples and well logs. The repository of geological samples is a by-product of the oil industry. The samples are taken by oil companies to determine the productivity of a well and tend to be discarded. The University of Texas at Austin however finds value in the geological data provided by these costly samples extracted from depths now exceeding twenty thousand feet at a cost of more than four million dollars per sample. The holdings span the entire era of prospecting for oil in Texas from the

nineteenth century to the oil boom years at the turn of the twentieth century to the present day. With different technologies and new purposes in mind the cores now allow for the renewed interest to detect hydrocarbon levels or the prospecting for hydraulic fracturing technology (Brooks, 2014). From this archive, the sculptor selected a single rock core, which was extracted from the Texas Permian basin at the depth of 5,285 feet into the Earth, where the rocks formed over a period of about 250 million years ago. Brooks' 70-foot long work *Repositioned Core* (2014) spanned the entire length of the gallery space and beyond, until the core plunged back into its subterranean space just outside the gallery space. Within the Austin Core Research Centre archive, the core samples are kept in sets of drawers containing vials with rock cuttings—a second archive of early-twentieth-century material culture and geological study practices. To stop the samples and vials moving, newspaper was stuffed into the drawers. By doing so, a third archive was incidentally created—an archive of the contemporaneous every-day, as documented in the pages of the *New York Times*, *Houston Chronicle* or the *American Statesman* (Figs 3.3.–3.5.). Brooks' works, the sculpture and the archival research, fuel our curiosity about material archives and interactions with archives, about framing and presenting timescales and spaces as registered in the archives of the Earth. The archives of the Earth are the geological strata and sediments holding the planetary records of inanimate matter and the fossil record. Reference samples are abstracted for analysis in research laboratories and natural history museums.

Such sequences and samples enable Earth scientists and ecologists to think of the present, human cultural history and the archive together in a single geochronological framework. Within this archive is a history of life forms, which long pre-date those of our own human time, as well as a record of their extinction. The nature-as-archive metaphor originates in the late eighteenth century in the work of natural scientist Georges-Louis Leclerc Comte de Buffon. He compares the history of humans with the history of nature in his publication *Les époques de la nature* [Epochs of nature] (1778). Methodologically, Buffon applies the writing of history to both human and natural histories through gathering, deciphering and interpreting evidence of the past. Linearity of time and the retrieval of the *archives du monde* [the world's archives] combine to make nature a site for history. In

reference to the layers of the Earth, French naturalist Jean-Louis Giraud-Soulavie then speaks of the 'archives of nature' [*archives de la Nature*] in 1781. He studied rock formations in the South of France and inferred that the archives of nature could be 'read' and offer a chronological order. The archive of nature has in recent decades become a primary source for the reconstruction of geological processes, climate history, evolutionary history and cultural history. Specifically the 'archive of the soil' is now understood as a natural archive of cultural history as much as climate history (Toepfer, 2013).



Figure 3.3. David Brooks *An Archive Within an Archive Within an Archive* (2014). Commissioned by the Visual Arts Centre at the University of Texas at Austin.



Figure 3.4. David Brooks *An Archive Within an Archive Within an Archive* (2014). Commissioned by the Visual Arts Centre at the University of Texas at Austin.



Figure 3.5. David Brooks *Repositioned Core* (2014) [Rock core, metal scaffolding, modified architecture. Size 28 x 92 x 18 feet]. Commissioned by the Visual Arts Centre at the University of Texas at Austin.

Currently we are living in a time of heightened consciousness of the rapidity of planetary ecological change, particularly biodiversity loss. The International Union for Conservation of Nature and Natural Resources (IUCN) Red List of Threatened Species, for example, has for over 50 years provided a global record of the conservation status of plant and animal species. The records are used to guide the activities of NGOs, governments and scientific institutions ('IUCN Introduction', n. d.). Artists have responded directly to such conservationist agendas. For example, in their exhibition *Conflicted Seeds + Spirit* (2016) artists Ackroyd & Harvey created a list of endangered species within a public space. The faintly printed list was displayed on the wall of the gallery space of the David Attenborough building in Cambridge (UK). The building is home to the Cambridge Conservation Initiative (CCI) and the University Museum of Zoology. It brings together academics, practitioners and students with collections and archives of the natural world. For the work *Seeing Red ... Overdrawn*, visitors were invited to retrace the names of endangered species with a red pen to make species names more legible. The participant visitor thereby contributed to a progressive performative piece of writing on the wall in the course



Figure 3.6. Ackroyd & Harvey *Conflicted Seeds + Spirit* exhibition (2016). David Attenborough Building, Cambridge (UK). Photograph: Bergit Arends (2016). Visitors within the exhibition space at the David Attenborough Building, Cambridge (UK) on 24 March 2016 interacting with the work *Seeing Red ... Overdrawn*.

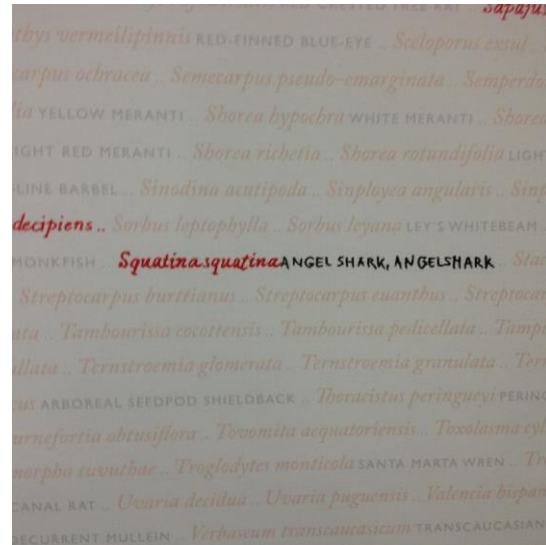


Figure 3.7. Ackroyd & Harvey *Seeing Red ... Overdrawn* (2016) [Detail]. *Conflicted Seeds + Spirit* exhibition (2016). Photograph: Bergit Arends (2016).

of which the legibility of non-human species became emphatically connected to human individuals. The image shows an international group of conservation students engaging with the work, reading, retracing and thus bringing to the fore binomial names to bring the individual species to our attention.¹³

The study of the archives of nature now generate material, analogue and digital data. As already discussed in the previous chapter, since the 1970s the study of global ecological change has been dominated by mathematical models and computer-generated system analysis modelling. Ecological processes are described by taking data from studies in the field to combine with computer simulations and ecological theory. However, the social organization of scientific research, in particular climate-change science modelling, and its articulations, raise questions about trust, uncertainty and expertise (Demeritt, 2001). A prominent example within the discussion of the Anthropocene, as I showed earlier, are the graphs of Earth system and socio-economic trends which model developments from 1750 to

13. The exhibition ran from 9 March to 17 April 2016. See <http://www.ackroydandharvey.com/conflicted-seeds-and-spirit/> and <http://www.conflictedseeds.com/> [both accessed on 18 June 2017].

2010, from the end of the Scientific Revolution, via the beginning of the industrial age in the 1800s to the present. The archives of the proposed Anthropocene are thus both born-digital and material. Its evidentiary material records lie within geological strata, as fossils or decaying radioactive elements. Meanwhile, perhaps the true material residue of the 'Anthropocene', the pervasive plastic polymers, are found in the planet's oceans or the 'plastiglomerate', an 'indurated, multi-composite material made hard by agglutination of rock and molten plastic', as washed up on the beaches of Hawaii (Corcoran, Moore, & Jazvac, 2014). The Anthropocene's digital archival remains can be found among the hum of the computer laboratories of the Climatic Research Unit at East Anglia University or the Potsdam Institute for Climate Impact Research. Managing these archives means integrating different media and file formats from different scientific collaborators and continually transferring data from formats on the brink of obsolescence into the information-management systems of the present. Its filing system processes are probably networked across and beyond the collaborating institutions of the International Geosphere-Biosphere Programme (IGBP), which closed at the end of 2015, and is now held in a secure digital storage system.

Archives in the sciences have to endure against obsolescence and redundancy as scientific concepts and research change. Objects or records in the sciences are first and foremost part of a working process. They fall into disuse when their epistemic value is superseded, giving way to new research objects and technologies to test new concepts. At this moment of becoming superseded, the object's value within the archive, or the archive's content as a whole, tip from having epistemic value within science to turning into historical records of the culture of science. The drifting towards forgetting or loss is often counteracted by an individual's passion, curiosity and spontaneity to rescue an archive, making arguments for preservation, conservation and data-basing to be accessible to enable the potential of a renewed cycle of research. In science studies, processes for interrogating and using objects and technology as well as the institutional and social structures for the dissemination of research findings within the sciences have become important as objects of study in their own right (Latour, 1987). These curational and research practices leave traces in the materiality of single objects, such as labels on

herbarium sheets, the pinning of an insect or the removal of tissue samples for genetic analysis, and these in turn become part of the archaeological and historical reading of the object. This approach is described by Foucault (2002, p. 211) through the unit of the *episteme*, characterized as bringing together sets of relations and discursive practices, which in turn can give rise to epistemological figures, sciences, and formalized systems. These units are formed through the relations between scientific working processes and the discourses surrounding them. The scientific object can thus become an object to be interrogated by tracing its role in transforming uncertainty, via experiment and hypothesizing, into evidence and building blocks for a knowledge system (Latour, 1999). Through this approach the making of 'nature' as knowledge system can be traced through epistemes. Nature as archive seems at first a counter-intuitive metaphor, if an archive is assumed to exist because of an intentional human process and archiving activity. The archives of nature, to stay with this concept, have come into being through physical and biological processes. Human intentions in the Anthropocene proposal, however, are now intervening in and contributing to this archive by making deposits.

3.3. Re-performing the archive

Foster (2004) writes of the 'artist-as-archivist', while art historian Mark Godfrey (2007) envisages a related figure, the 'artist-as-historian'. Both notions, archival and historical, are relevant here. After summarizing Foster's and Godfrey's art-historical propositions, I develop them further in the context of the artists' works discussed in the thesis by examining their use and production of archives in relation to environmental change as an inherently historical process. This provides a basis for introducing the concept of re-enactment and, more crucially, the concept of *re-performance*, which better captures the complexities of the artists' practices discussed here.

Foster (2004) describes a range of motivations driving artists to 'probe' the archive: to 'physically' present (often) lost or displaced historical information, alternative knowledge or counter-memory; to de-familiarize or disturb the legibility of current knowledge; to draw out relational and tactile qualities; and to push originality and authorship. The archive can 'concern love as much as knowledge'

(p.6).¹⁴ Artists source and elaborate on found images, objects, texts and favour the installation format. Artists producing archives themselves ‘underscore[s] the nature of all archival materials as found yet constructed, factual yet fictive, public yet private’. These materials are then often arranged ‘according to a quasi-archival logic, a matrix of citation and juxtaposition’, and presented ‘in a quasi-archival architecture, a complex of texts and objects’ (pp. 4–5). Foster draws out characteristics of artists’ works that question the authority and reliability of archival knowledge, processes of extraction and re-configuration. Through his selection of artists, Foster’s framing of the artist-as-archivist remains very much in the contemporary European–American artistic methodology and vernacular.

Godfrey (2007) develops the analytical activity of the ‘artist-as-historian’ through the ‘artist-as-archivist’; both methodological approaches work with archival source materials. He is specifically concerned, however, with history and its representation. He examines contemporary strategies for historical representation, prompted by the reinvigorated legacy of history painting since the 1960s by artists such as On Kawara and Gerhard Richter (2007, p. 141). From the 1960s and 1970s onwards, an increasing number of artists emerged, whose practice starts with research in archives or whose work is archival in form (Schaffner & Winzen, 1998). The combination of archival methods and historical subjects emerges in different media and forms of representations, be these object-based, photo-based or performance-based works—or indeed hybrids thereof. The purposes of such archival practices and their representations of history are, among other things, to make connections between characters, events and objects and to reconsider the way the past is represented in wider culture when the historical or contemporary work was made. Around 2000, a ‘historical turn’ occurred, marked by an increasing interest in crossing the popular cultural activity of re-enactment with contemporary performance art. In this type of practice artists have re-performed historical events

14. The quote is in relation to the archival works by Swiss artist Thomas Hirschhorn, whose work Foster discusses as one of his case studies. The other two case studies are works by British artist Tacita Dean and American artist Sam Durant. Foster states that these are just some examples ‘of artistic practice as an idiosyncratic probing into particular figures, objects, and events in modern art, philosophy’, and the list of artists working in such a way could be extended, including Mark Dion (Foster, 2004, p. 3).

and have documented these temporary performances, circulating them in different formats (video, photography, exhibition and now increasingly social media). At the outset of this hybridization was artist Jeremy Deller's work *The Battle of Orgreave* (2001) (Bishop, 2012, p. 34). Deller, commissioned by contemporary art agency Artangel, worked with members of over twenty re-enactment societies, such as The Sealed Knot, the Wars of the Roses Federation and the Southern Skirmish Association. Significantly, he also worked with former miners and former policemen to restage this major confrontation between police and miners during the miners' strike 1984–1985. Deller thereby brought together not just historic re-enactments, but also recent, lived experience. He drew on archival documentation and personal accounts from both police and miners (Deller, 2002, p. 7). Deller addresses different audiences through the project's outputs. The artist referred to *The Battle of Orgreave* as both a contemporary history painting—'history painting from below'—through the medium of performance and as a work of 'community theatre' (Deller quoted in Bishop, 2012, p. 34). The range of forms to disseminate the conceptual idea of the *Battle of Orgreave* was typical for the media context of the day. The participatory event of the re-enactment itself was documented by film director Mike Figgis; the film has its own distribution. In 2004 the dissemination of the project was furthered by the exhibition installation *The Battle of Orgreave Archive (An Injury to One is an Injury to All)*. The exhibition included archival and material objects as records from the 1984 riot and the strike leading up to it. The exhibition then combined historic documents as well as documents of the artist's reinterpretation seventeen years on (Bishop, 2012, p. 35).

Re-enactment is a specific cultural form designed to appropriate history and to write or re-write history, myths and rituals (Agnew, 2004; Lütticken, 2005a; Roselt & Otto, 2012). Deller's project is part of a tradition of restaging political events to evaluate and re-live history through commemoration, such as the storming of the Bastille in France or the storming of the Winter Palace in Russia. This revolutionary event at the Winter Palace was first re-enacted on the third anniversary of the October Revolution and performed in Petrograd, where it had taken place originally (Lütticken, 2005b, p. 53). The cultural, not just an overtly political, history of re-enactment in Western societies goes back to forms of historical parades and

pageants to narrate inter- and cross-cultural exchanges. Particularly from the late nineteenth century onwards, historicist tendencies sought out the past, making it relevant to the present through historical novels, history paintings, neo-styles in architecture and interior design. European and American cultures created re-enactments of historical periods and 'exotic' cultures, mixing historical accuracy and the fantastic (Lütticken, 2005b, p. 29).

Re-enactment has varied roots, historical frameworks and purposes. Essentially it is the attempt to reproduce historic events at historic sites by amateur actors. Here I am concerned with application in contemporary, performative artistic practices. Re-enactment has been characterized by three main elements: a collapsing of past and present, connections with the past through physical experience and finally, a relationship with authenticity (Gapps, 2009). Re-enactment is a type of performance, its medium being the living body as vehicle that carries the past into the present and that can give the past presence (Allen, 2005, pp. 179–181). Public historian and practising re-enactor Stephen Gapps (2009) describes re-enactment as a struggle over whose authority by transforming the content and form of a history for the public into the content and form of a history by the public. Historian Vanessa Agnew characterizes re-enactment by its disregard for disciplinary specializations and the distinctions between lay and professional expertise. It is an explicit attempt to undermine academic privilege. To Agnew (2004, p. 335), a re-enactment ought to make visible how events were imbued with meanings and whose interests were served by those meanings, rather than 'eclipsing the past with its own theatricality'. Re-enactment can therefore be a heuristic tool to broaden out interpretative questions about the past. It can open up the past not through a historical account, but by interrogating the conditions and possibilities within the past (2004, p. 335). An example of how the above characteristics come to play is the project *Cook's sites: revisiting history* (1999) by documentary photographer Mark Adams and anthropologist Nicolas Thomas. The project aimed for a more differentiated mode of history writing. The collaborators' purpose was to revisit Cook's landing places in New Zealand as well as museums and archives in Germany and the United Kingdom to 'rediscover the risk and possibility' within the encounters between Maori and Europeans during the 1770s

and to reflect on ‘multiple potentialities in cross-cultural relations’ (pp. 9–10). The project’s publication (Adams & Thomas, 1999) photographically documents Adams’ and Thomas’ re-visits to historic sites of encounter. Adams’ black-and-white photographs are presented together with a sequence of reproductions of historic images (including William Hodges’ paintings of Dusky Bay (ca. 1775–1776), Lepernière’s (1777), George William Anderson’s (1784–1786) and Theodora Viero’s (ca. 1791) engravings inspired by Hodges’ work), maps, travelogues and material objects. These pictorial and material witnesses of encounters are now dispersed within the present day discursive apparatus of museums, libraries and memorials. The intimate space of the book unites these things to ponder History (Denning) as product of interpretative acts. From different disciplinary perspectives and from the photographer’s and historian’s current experience, the project thus sought to destabilize historical interpretations and discern whether colonialism was a foregone conclusion of these encounters (Agnew, 2004)—questions impossible to answer conclusively. The project was also an attempt to bring history and geography together, to spatialize that past and to treat it as a construction site in which history did not have the same consequences for everyone. Such a turn from “excavation sites” into “construction sites”, can recoup possible scenarios, as argued by Foster (2004, p. 22). The interrogation of the past through re-enactments remains current, but has become geographically and culturally more diverse. Since 2010, the Center for Historical Reenactments (CHR), based in Johannesburg, South Africa, provides a collaborative platform to raise questions about the political potentials of artistic representations of histories. Through performative work, research and exhibition projects, the CHR explores how artistic production is informed by historical contexts. But the artists also deconstruct specific readings of history to reclaim history *for* the public [emphasis in the original (‘Center for Historical’, n. d.)].

The broad concept of re-enactment has some resonance in the artistic case studies examined in this thesis: for example, ideas of the collapsing of past and present, a non-hierarchical approach to disciplines and research outside of academia, the forming of subjective identity and fantasy. Re-enactment suggests a collective activity. Its emphasis lies on authenticity. However, the term is of limited

application in the context of the artworks discussed here. Re-enactment only partly captures the complexity of these artists' strategies for engaging with historic archival sources, processes of research and forms of display of archival materials. The artists' narrative strategies do loosely employ forms of re-enactment to transport their enquiries. All three artists retrieved misplaced and forgotten archives as resources and bases for their works. They evolved strategies to understand and analyse the source material by asking with 'love' and 'knowledge': What is the archival system? What are its processes? How can the archive be read? What do individual images reveal? The artists knowingly bring moments of fiction and fact into their works. Their research projects are only partially a search for authenticity and only partially a performative repetition of past events. Their artworks are intentional and selective appropriations, adaptations and amalgamations through their subjective working methods.

Though aspects of the re-enactment model can be observed in the selected case studies, I prefer to use the term *re-performance* in this context, in order to emphasize the processual appropriation of archival practices through the prefix 're'. Yet at the same time the appropriations create deliberate and knowing differences distinguishing the event of the performance from its pre-text. From the outset these projects thereby undercut the quest for and concept of authenticity. By *re-performance*, I refer to engagements with and interpretation of material archival objects as well as performative and processual actions, including walking, seeing, using equipment and technology, and engaging in dialogues with collaborators and publics.

The role of photography as a way of documenting the world, a source of information and an artistic medium is fundamental to all three case studies in the second part of this thesis. As documentation, evidence and representation, the medium of photography straddles the practices of science and art (Mitman & Wilder, 2016). The practice of re-photography, used in a variety of contexts, is driven by notions of archival fidelity (Wilder, 2009, p. 123). Re-photographing rural and urban environments and individual people over a series of moments in time is a strategy used by artists and scientists alike. The photographic freezing of moments in time allows for detailed observation and comparison of a subject in

transformation (Nordstrom, 2007, p. 14). Such re-photography projects can trace natural and cultural histories and shape the identity of place. To illustrate this with an example: the street photography by Eugène Atget at the turn of the twentieth century documents the built environment of Paris, its urban nature (such as root and foliage structures of trees) and the details of everyday life within the city. His photographic images, taken over about three decades, became an inventory of the *belle époque*—incidentally somewhat contemporaneous to Salisbury walking the British Isles. Atget's archive of Paris was largely forgotten after the First World War until American photographer Berenice Abbott rescued his photographs from oblivion by purchasing and reprinting some of his glass negatives. Atget's project inspired Abbott's *Changing New York* (1939), which photographically documents the city during the Depression era. In turn, since 1997, photographer Douglas Levere has been revisiting Abbott's work by re-photographing the sites she captured. Levere replicates the exact times of day and year, the camera angles and depth of field, even using Abbott's camera (Nordstrom, 2007, p. 15). By contrast, contemporary artist Richard Wentworth's photography project *Making Do and Getting By* (2015), inspired by Atget's work, documents the contingencies of urban life. Wentworth's book and exhibition project *Faux Amis* (2001) unfolds a dialogue with the historic images by Atget. The title refers to a pairing of two things, which are at the same time similar and dissimilar (Wentworth, 2001, p. 28).

The above examples suggest how archives can often speak of loss and oblivion, prompting active preservation of materials as foundational resources to comparatively study change, here within urban landscapes. The cited projects give insight into different narrative strategies chosen by artists in working with photographic archives and confronting the technological challenges that entails. The inter- or multi-disciplinary potentials of photography in relation to existing and new archives are myriad too. Re-photographic projects have cinematic, repetitious and authoritative qualities, by virtue of inviting comparisons (Wilder, 2009, p. 124). A recent project in this mode is *Second View*. In *Second View* (1980s)¹⁵

15. The images of the follow-on projects *Third View: a rephotographic survey of the American West* (1997–2000) are documented on their website. Retrieved from <https://www.thirdview.org/3v/home/index.html> [accessed on 2 December 2016].

photographers Mark Klett, JoAnn Verburg, Ellen Manchester, Gordon Bushaw and Rick Dingus re-photographed the landscape of the American West, based on photographs by surveyors taken for the United States Geological Survey, in particular Timothy O'Sullivan. The present-day photographers analysed the photographs to determine the installation of the camera, tilt, swing of the camera and lens settings to bring to the fore the technical decisions made to achieve the survey images (Wells, 2011, p. 130; Wilder, 2009, pp. 124–128). As an example of the application of comparative photographic work to the study of environmental change, ecologist Alfred Ringler (1987) has taken photographic images of endangered habitats in southern Germany over the past decades. By comparing different moments in time in the same location, he aims to draw attention to habitat loss. There are many examples of such longitudinal photographic studies at terrestrial level, such as the documentation of retreating glaciers as indicators for a changing climate. Re-photography thus offers a genuine strategy to observe environmental changes. The aerial perspective, a type of vertical gaze, has now become a habitual perspective through which to document environments. The Landsat Project is an ongoing joint initiative between the U.S. Geological Survey (USGS) and NASA. The first Earth observation satellite Landsat 1 was launched in 1972, its latest, Landsat 8, was launched in 2013. The programme has systematized the monitoring of the Earth's surface. For the four past decades these satellites have collected space-based, moderate-resolution land remote sensing data for, among other uses, mapping and global-change research. The data is used for commercial, industrial, military, civilian and educational purposes within the United States and worldwide ('Landsat', n. d.). Repeated observations in sequences of images allow for the monitoring of vegetation patterns, air pollution, heat irregularities such as fires, and structures thinly veiled by layers of soil. The image data resolution can make visible the entanglements of human-made and natural environments (Weizman & Weizman, 2013). This satellite vision technology has turned the 'entire planet into a site of forensic investigation. . . . from an extraterritorial dimension of outer space'. The technology is a surveillance product of the Cold War, that is now used equally by militaries and human rights organizations (p. 21).

Archives and images hold fragments of the world and of its history. Artists interpret these fragments, compare and transform them. I consider here montage as a structural device for the interpretation of a changing environment. The framework of montage allows comparisons between images and sites and thus can highlight the similarities and differences between past and present events. The artists discussed in this thesis open up narratives between environmental events. They probe the social, scientific and technological circumstances of the making of images in relation to the environment. I discuss the principle of montage as an analytical and structural device in making, presenting and interpreting works of environmental art. It is a form of construction in which images comment on other images (Weizman & Weizman, 2013, p. 14). But it goes further than the space of the image: montage as an organizing principle underpins the assembling of myriad and fragmentary materials— documents, texts, specimens, photographs, diagrams— that comment upon each other.

Montage can be understood as a cultural technique, referring to cultural skills, routines and procedures performed by a human subject or actor towards objects by using tools or technologies (Winthrop-Young, 2013). The social-historical and ideological conditions for montage as an artistic practice developed in the first third of the twentieth century (Kern, 2003). The technique originated in film editing, though it was soon also applied in a wide variety of other contexts. Montage is a process of assembling ready-made pieces to form a new entity. It refers to an editing process of juxtaposing meanings between images or textual descriptions, which at first glance are not connected. In the montage process meanings become overlaid, juxtaposed and mutually informing in an associative way. Elements of montage are fragments, deliberately unfinished or not, which stand opposed to the concept of totality, even where the fragment mirrors the whole of the totality from which it is a fragment. The life of a fragment can thus become part of an open and heterogeneous structure as opposed to a closed, centred and unified structure (Kessler, 2006; Seibel, 1988; Žmegac, 1994).

The exhibition *Art of the Assemblage* (1961) at the Museum of Modern Art in New York (MOMA) claimed to be the first exhibition to ‘demonstrate fully the importance of collage and its expanded forms’ (MOMA, 1961, n. p.). The group

show of 250 works by 130 artists was curated by William C. Seitz. On show were early twentieth-century modernist and surrealist works, 'dramatising the aesthetic of irrational juxtaposition', abstract art from the American post-war and a range of works using industrial and waste materials or taxidermy. A press release for the exhibition described assemblage and collage as procedures to 'organize creative thought in the modern world . . . to denote not only a specific technical procedure and form used in the literary and musical as well as the plastic arts, but also a complex of attitudes and ideas' (1961, n. p.). The *Art of the Assemblage* exhibition offered a sweeping overview of the practice of American and European artists who created works that are in themselves montaged, assembled and collaged. However, there is no clear definition in the terminology.

Montage as technique does however segue into the organizing principle of the archive. Art historian Benjamin Buchloh echoes the conceptual complexity by reflecting on artistic collections of photographs and how to read their underlying structure. The presentation of such collections (whether made or found) as 'independent artistic statements' (Buchloh, 1998, p. 50) has been common practice since the 1960s.¹⁶ The practice systematically organizes historical knowledge in following the didactic organization of technical illustrations or of administrative catalogues, thereby becoming 'collage as archive' (p. 58). Such collage affords the overlapping of conceptual fields corresponding to type and format of archival collections.

Arrays of single images can be montaged into an *atlas* for comparative studies of visual culture and history, as in scholar Aby Warburg's (1866–1929) *Mnemosyne Atlas* (1924–1929) or painter Gerhard Richter's *Atlas* (1962–ongoing). Both archives use reproduced photographic images or image reproductions of artworks and architecture. In their multiple arrangements of images on panels, or varying selection of images for display, meanings are experimentally overlaid, confronted and combined. While these two atlas examples deal with a multiplicity of manipulated images, single photo montage images—also referred to as collage in

16. Buchloh (1998) uses as typical examples the photographic projects by Christian Boltanski, Marcel Broodthaers, Gerhard Richter and Bernd and Hilla Becher. The Bechers worked within a standardized frontal photographic perspective to create 'an archaeology project of industrial architecture from the late nineteenth to the middle of the twentieth century . . . with a salvaging function'. (p. 56)

this instance—from the early twentieth century onwards combined typography, motifs of the everyday and of commercial culture as much as motifs of political propaganda. The ‘theatrical montage’ shifted the indexical photographic document to make an iconic argument (Hesse, 2016, p. 100).

Early in the twentieth century, the exhibition space itself was also already understood as spatial montage. Montage as exhibitionary principle varies in its purposes. In 1931, art critic Durus wrote for the German newspaper *Die Rote Fahne* [The red flag] about the Reichsausstellung [Reich’s exhibition] of worker photography in Berlin: ‘The reality dissected into pieces will reflect their social emotion in fundamental relationships and principles . . . this encourages a designation of ‘dialectical montage’ (quoted in Hesse, 2016, pp. 100–101). From the 1990s onwards, artist-curated exhibitions, those intended as institutional critique and those playing with notions of history and archaeology, can also be understood as montage-based exhibition models (Bishop, 2015). The spaces in which montages can thus be assembled are within the space of the single image, the performative or sculptural work, or within exhibition spaces.

In expanding the concept of montage beyond institutional exhibition spaces towards the environment itself, the work of anthropologist Hugh Raffles is especially suggestive. In his book *In Amazonia*, Raffles (2002) describes nature as dynamic and heterogeneous, formed again and again from presences that are cultural, historical, biological, geographical, political, physical, aesthetic and social. Such nature, he writes, ‘calls for a natural history, an articulation of natures and histories that work across and against spatial and temporal scale to bring people, places, and the non-human into “our space” of the present’ (p. 7). Raffles draws our attention to the heterogeneity of actants within nature—people and the non-human—as well as histories in different spatial and temporal scales. Manipulation through montage can thus play with a loss of chronological orders through supposed synchronicity and draw attention to dynamic processes. How do we describe the space of the present? Chakrabarty (2000, p. 243) evokes our present through ‘the plurality that inheres in the “now”, the lack of totality, the constant fragmentariness, that constitutes one’s present’. He thereby urges us to learn to think the present in order to rethink the ‘problem of historical time and to review

the relationship between the possible and the actual'. Chakrabarty uses the notion of the plurality in the present in order to counter the historian's re-enacting of history towards a utopian state that is yet to be achieved. These theorists enable us to think about environmental change through the synchronicity of different historic moments and their conflation within montage: Chakrabarty offers an understanding of the historic plurality of a fragmentary 'now'; and Raffles acknowledges the heterogeneity of the environment of such a 'now'.

There are two characteristics of montage that I want to develop further in the context of recent discussions of the Anthropocene: its inherent 'temporal heterogeneity' (Chakrabarty, 2000, p. 243) and its use as a forensic tool. As discussed above, montage has its uses in studying interfaces between images, materials and objects, placed or found within different spaces. These interfaces and the objects themselves can generate cycles of connections, comparisons and interpretations. The forensic aspect of montage emphasizes the assemblage of fragments or incomplete knowledge for the reading of patterns. Such patterns can be intended or random, but there is the urge to develop patterns in what might be random or incomplete. The story of Max Frisch's novella *Man in the Holocene* (1979) illustrates this information gathering for forensic purposes. The protagonist Mr Geiser, a 73-year old widower, attempts to stem the loss of his own and humankind's memory and knowledge. As a daily practice he reads, selects and cuts out newspaper articles, extracts from the bible and various encyclopaedia entries. His amalgamated knowledge is then grouped into paper montages stuck onto the walls of his dwelling in the Swiss Tessin Valley. Struggling for clarity, against the beginnings of memory loss and through the physical limitations of his ageing body, he attempts an ordering of encyclopaedic knowledge of the world. Geiser's collecting and assembling of data appears intuitive and compelled, arising from an 'as yet non-conceptualized quotidian practice' (Winthrop-Young, 2013, p. 9). His collection of facts particularly focuses on geology and dinosaurs, but also includes weather phenomena like thunder. Geiser becomes troubled by the presence of a fire salamander in his house. But his knowledge, so he believes, still makes him distinct from the salamander, a non-human animal. The pages of Frisch's printed book themselves become a montage by including image reproductions of

encyclopaedia entries and dinosaur illustrations within the text. In the parable, the protagonist becomes a collector, looking for patterns in a vast array of information, scrambled together from his modest domestic library. The montage collection can be read as a diagnostic instrument for fear of memory loss. I interpret the montage as an instrument for the fragmentary nature of knowledge; its purpose is forensic. Is there a pattern we can read? Can we read what was written in the 'book of nature' or the 'encyclopaedia of life' to use two popular metaphors? Art historian W. J. T. Mitchell (2016) describes the forensic methodology of montage as being in search of the hidden pattern, by learning to read something which was never written down.

At this point the artist can also become the forensic expert in search of a pattern of evidence. In the context of this study, this evidence concerns environmental change. The Anthropocene discussion draws our attention to the unintended consequences of human actions in the past, so that we might understand the current predicament. Montage as forensic tool helps to study the temporal heterogeneity of an environment. Can the principles of the forensic montage enable us to read the clues of change, intended or not, or to observe patterns of environmental change? In Frisch's parable *Man in the Holocene* we find a form of history within which the device of montage is used as an encyclopaedic tool. The archive as knowledge reservoir and montage as forensic tool are aspects of a methodology for environmental change. Yet the knowledge of our present needs to be traced through the evidence of past events.

4. Mark Dion and William Beebe: *A Yard of Jungle* (1992/1915) and 'My jungle table' (1923)

4.1. Introduction

As I sit at my table, my little cosmos of space and time presents deaths by violence, and lives of quiet, unperturbed peace; acrid, burning odors and smashing, sweeping brilliancy of color; living skin, soft and smooth as clay, or fretted like shagreen; voices almost high enough to become visible; comedy so delicate that appreciation never reaches laughter, and tragedy so cruel and needless that it stirs doubts of the very roots of things. All these, and many more, begin, occur, and pass before me—things which go to make up a world. (Beebe, 1923, p. 29)

From his workstation table in the tropical forest at Kartabo in British Guiana,¹⁷ the naturalist William Beebe evoked a 'cosmos of space and time' for an essay published in *The Atlantic Monthly* magazine in 1923 (Beebe, 1923, p. 22). Beebe's vivid description of his experience of the tropical environs of South America inspired Mark Dion's artistic practice—and continues to do so. In this chapter I study Dion's artistic engagement with nature through the reconstruction of the natural world in Beebe's early writing. Dion appropriated the micro-geography of the table, from which the natural scientist observed, studied and imagined 'a world', in his own work, *A Yard of Jungle*, created for the *Arté Amazonas* project in 1992. Dion's work re-interpreted Beebe's table within the environment of tropical British Guiana as originally described in the naturalist's 1923 essay, 'My jungle table'.¹⁸ Beebe's essay belongs to a tradition of late nineteenth and early twentieth-century American nature writing, intended to entice audiences to participate (virtually) in the aesthetic and scientific experience of nature. Authors like Beebe would sometimes use the structural composition of the 'mimetic walk' to evoke a sense of being in and moving through nature in time (Kohler, 2006, p. 88). Another piece of writing

17. British involvement in the region began from 1780, occupying Guyana during the Napoleonic Wars in 1814. The country became a British colony from 1831 until 26 May 1966 when it gained independence from the United Kingdom. The spelling follows contemporaneous usages: 'Guiana' when British, but 'Guyana' afterwards.

18. Mark Dion referred to Beebe's 'My jungle table' as one source for the making of *A Yard of Jungle*, Mark Dion, interview with the author, 4 June 2015.

referenced by Dion is an earlier essay of Beebe's, also entitled 'A yard of jungle',¹⁹ originally published in his anthology *Jungle peace* in 1919.²⁰ This essay describes the scientist's fieldwork observations and collecting within the tropical forest in Pará, Brazil, in 1915. Dion montaged both pieces of Beebe's writing together in *A Yard of Jungle* because he shared the same aim as Beebe: to give audiences access to nature and to intertwine natural and human histories. Moreover, both their works relied on wider political and economic infrastructures. Beebe was aided by the British Government and funded by the United States' wealthiest entrepreneurs and philanthropists who sought to activate new industrial developments for the US in Guiana in the early twentieth century (Dion, McLeod, & Thompson, 2017). Dion's research was part of a project created in the cultural climate of the global United Nations Conference on Environment and Development (UNCED), held from 3 to 14 June 1992 in Rio de Janeiro, Brazil. His project was commissioned by the German Goethe Institut for the exhibition *Arté Amazonas* at Museu de Arte Moderna (MAM) in Rio in June 1992. The West German government-supported exhibition *Arté Amazonas* took place in a time of political convergence between Brazilian and West German environmentalists. According to historian J. R. McNeill and Peter Engelke (2014, p. 201) such processes of cooperation took place once both countries had agreed to build nuclear plants together; the 1992 event resulted in a deeper integration of Brazilian environmentalists within global activist networks.

Dion's explorations of the Amazonas region are not limited to the particular moment of 1992. Together with artist Bob Braine, he wrote about the experience of tropical fieldwork in the artists' publication *Neotropic, 1989–2005* (Braine & Dion, 2006). Their travel accounts in photographs and text include many trips to Guyana and comment on their Western expectations of encountering wilderness:

the desire to experience what we at first imagined as "real" wilderness. This of course was not the case. . . . at every step of the way evidence of human activity, both in harmony and at odds with ideas of sustainability,

19. 'Exploring a tree and a yard of jungle' was published in 1916 in the *Zoological Bulletin* of the New York Zoological Society. A version of this article was published in *The Atlantic Monthly* and later became part of Beebe's essay anthology *Jungle peace* (1919, pp. 239–262).

20. The first publication was in 1918, but in the exhibition catalogue *Arté Amazonas* (1992) Dion quotes an extract (p. 100), dating it 1919.

was apparent. No matter how remote an area seemed to be we were constantly confronted with the realization that someone was always there and always had been. Abandoned mining camps, masses of rusted equipment and the skeletons of wrecked boats littering the sharp rocks of the Mazaruni River made us unavoidably aware that we were traversing a post-industrial landscape. (p. 9)

Braine and Dion's expectations of pure nature thus veered towards the realization of human nature, linking human and natural histories, histories of resource exploitation and global economic cycles of industrial activity and decline. In my analysis in this chapter, I show how artistic and scientific readings of nature became interwoven in Dion's work and why the artist developed strategies to communicate, partly in person, these interconnections to audiences. I read Dion's work as embedded in the political and institutional context of its making. His project encompassed Beebe-inspired re-performances of fieldwork within the rainforest and an emulation of scientific study, followed by the performance of archival storage within an exhibition space. Dion used both spatial situations to construct a continuous, dynamic narrative within his work, taking a sequential path from conducting fieldwork, to making a study-table installation, to creating performative interactions with the public while at the study table, and finally to leaving behind the installation as a sculptural tableau. The sculptural installation remained in the exhibition space and toured to subsequent exhibition venues. The artist's work was made over a period of time and referenced different moments in time. To achieve a temporal montage Dion used structures of appropriation and citation, repetition and ordering, presence and absence.

In *A Yard of Jungle* Dion sought to show exhibition audiences how nature becomes constructed through the culture of science and the scientific adventurer. He created access to the experience of nature by enacting scientific and archival procedures, by showing nature's materials together with the material culture of science and by creating a specific social and moral environment. But the place of nature remained an abstraction for the audience. There was no direct indication from within the work how its contents related back to a specific place outside of the museum.

The moral environment of Dion's work was provided through its commission for and display within the *Arté Amazonas* exhibition and its association with the political and activist context of the Rio Earth Summit. The social environment engaged audiences in conversation with the artist during its performative enactment within the installation. *A Yard of Jungle* offered an infrastructure of artistically mediated access to nature under the ambiguous guise of enacting scientific study of materials detached from their former context. But the audience was not offered full knowledge about the origins of the work. As the performative work within the exhibition installation progressed in interaction with the public, access to nature turned into the denial of access. The artist archived and stored the collected and preserved materials of nature away from sight and out of the reach of exhibition audiences. Once this work was done after a few days, he absented himself from the study environment.

Dion's other aim was to present the environmental destruction of the Amazonian tropical rainforest to an exhibition audience at MAM and subsequent exhibition venues. In his work the artist created his own 'cosmos of space and time', bracketed by two moments: April to May 1915, when Beebe visited Brazil, and June 1992, the moment of the Rio Earth Summit, during which most nations of the globe gathered to address critical levels of environmental change. This temporal structure was used to compose the work, a montage of different textual elements that demanded their corresponding performative re-iterations. In looking at *A Yard of Jungle*, this chapter explores in depth Dion's context-oriented engagement with the work of historic protagonist Beebe. My contribution to the interpretation of Dion's body of work is a close reading of *A Yard of Jungle*, a key work of environmental art that is often referenced, but rarely analysed in depth, with the exception of the work of art historian and curator Christine Heidemann (2005). My analysis brings into close view the relationship between Beebe's work and the exhibition site of Dion's project. The aim is to interpret interrelated aspects of *A Yard of Jungle* that form a structural montage of text, photographs, physical places, material things and performance.

The constellation Dion created, its interplay of materials and its particularities, became a locus of specific historical and contemporary knowledge (Michalka,

2015b, p. 20) of the environmental destruction of the Amazon region understood within the context of global cultural politics. Both Beebe and Dion sought to offer access to nature beyond disciplinary cultures. I start, in this section, by introducing Beebe and Dion as biographical subjects, drawing attention to their professional and philosophical formation as naturalist and artist respectively. In section 4.2., I describe the *Arté Amazonas* exhibition in its context and its reference to the global art exhibition *Magiciens de la Terre* (1989). This is followed by the descriptions of Beebe's historic fieldwork, the site of the study table and Dion's re-performance of both (sections 4.3. and 4.4.).

William Beebe (1877–1962) was from a middle-class background, his father was a company executive, and he studied natural sciences at Columbia University, New York. He left without graduating to join the New York Zoological Society (NYZS) at the newly established zoological garden in Bronx Park as assistant bird keeper at the invitation of his university tutor Henry Fairfield Osborn. From 1902 to 1918 Beebe served as the Society's first curator of birds and he remained honorary curator until his death. He authored the commissioned and lavishly produced four-volume monograph on pheasants (1918–1922) and over 20 popular books on science. For the Department of Tropical Research (DTR), referred to as such from 1918 onwards, Beebe undertook many terrestrial and oceanographic expeditions, including several to the Galápagos Islands. Most famously, together with engineer Otis Barton, he achieved a world record in August 1934 when they descended half a mile underwater in the purpose-built bathysphere. The fieldwork in Pará was a turning point for Beebe, after which he set up fieldwork stations in British Guiana, then in Bermuda and later at Simla, Trinidad, where he continued to research after his retirement until his death in 1962. Since 1974 Simla has been run by the Asa Wright Nature Centre, which maintains the field station as a tropical research facility ('William Beebe Tropical', n. d.). The field station in Kartabo (then British Guiana, now Guyana), where Beebe penned the eloquent description of nature that introduces this chapter, was established in 1919 and used until 1922. It was the second DTR field station, after the original station Kalacoon was established in 1916 but later abandoned because of nearby expanding rubber plantations. The stations were located near the junction of the Mazaruni and Cuyuni Rivers. Beebe and the

Department were responsible for the discovery, description and preservation of over 800 new species, including fish, insects, molluscs and mammals, and the collecting of live specimens for the NYZS.

Mark Dion (b. 1961) grew up in the industrial coastal town of New Bedford, Massachusetts, USA, currently lives in New York and works worldwide. He studied Fine Art at Hartford Art School, University of Hartford, Connecticut, and gained his degrees in 1986 and 2003. He also studied at the School of Visual Arts in New York from 1982 to 1984 and participated in the Whitney Museum of American Art Independent Study Program from 1984 to 1985. Like Beebe, Dion studied biological sciences at home and later at City College in New York. Coming from a working-class family and environment, he discovered art in his late teens—seeing his first exhibition at the age of 18—and still thinks of his travels to the forests of Central America as a ‘third’ stage of his education (Kwon, 1997a, p. 8).²¹ His body of artistic work presents a sustained and critical interrogation of historical and contemporary ideas about nature and how these are manifest in the methods of nature study, notably in the museum. Dion appropriates scientific, archaeological and conservation methods of collecting, ordering, archiving and displaying objects. He embodies the travelling artist-researcher, whose temporary studio spaces are those of public institutions. To this end he has worked extensively with natural history museum collections in Europe and America since the early 1990s. Some of his works involve expeditionary fieldwork mostly in the USA, in South America and Central Europe. Notwithstanding its often humorous elements, his work expresses a sense of pessimism concerning environmental deterioration caused by human interventions and the ineffectiveness of environmental activism.

During his studies in New York, Dion experimented with narrative structures of investigative documentary film and translating these structures into sculptural installations. The film *Artful History: a restoration comedy* (1987), a collaboration with Jason Simon, marked a turning point in Dion’s practice. The work established the structural principle of ambiguity in Dion’s works (Heidemann, 2005, pp. 21–32). In documentary style, but hovering between fact and fiction, the film deals with

21. Similarly, Beebe, born in New York, grew up in New Jersey and, when he was not on fieldwork in South or Central America, lived and worked in New York.

interventions by art restorers into the materiality and iconography of paintings. Dion himself worked as an art restorer and he narrated the film's voice-over. The work sought to expose a system of profit-making in the art world (Michalka, 2015a, p. 98). In the political context of the Reagan-era of the 1980s, Dion perceived the film as a metaphor of the USA's efforts to uphold a national identity and to construct its history as supreme global power in what transpired to be the final phase of the Cold War (Heidemann, 2005, pp. 26–27).

Dion's early works experiment with strategies to manipulate appropriated materials and practices towards critical reflections on history, politics and economies. From the mid-1980s onwards and in particular following *Artful History: a restoration comedy*, Dion began to make works for exhibition that directly connected natural science and environmental change. He started to appropriate disciplinary working and study methods to unsettle perceived truths about the discipline. Nature writing, scientific journalism and the critical study of evolutionary biology opened up new worlds to him. In his practice Dion started to connect scientific literature, materials and discursive formations (Kwon, 1997a, pp. 9–10). Moreover, works of art emerged out of specific social and cultural situations. Above all, his method became contextual, or site-oriented, an approach described by Alex Coles (1999, p. 54) as 'making a project . . . an extremely situational endeavour'. Dion reflects in an interview with art historian Miwon Kwon (1997a):

The first works were the *Extinction* series, *Black Rhino, with Head* (1989) and *Concentration* (1989), which explored the problems of environmental disruption in relation to colonial history. It was in these works that I first made use of the shipping crate as a way of addressing the international traffic of material and ideologies and myself. . . . In both works I was looking at a complex system, trying to examine how the current loss of biological diversity through extinction could be seen as a protracted effect of colonialism, the Cold War, and 'Band-Aid' development schemes. (pp. 9–10)

The installation work *Black Rhino, with Head*, made for an exhibition in Belgium, represented the politics of colonization through the 'pernicious relation' (Kwon, 1997a, p. 9) between Belgium and the African continent, as well as the politics and economy of endangered species protection. A preserved head of a

rhino, bedded onto wood chips inside a wooden crate, is placed on the floor. The viewer can look into the box, which is placed next to a stack of other wooden freight boxes, some with photographic illustrations of the animal's habitat and a coloured map of Africa. The material vocabulary of the sculptural installation speaks of trafficked animal species, as listed in the IUCN (International Union for Conservation of Nature) Red List of Threatened Species. The collage *Concentration*, made of ink and paper, depicts flat, black-and-white silhouettes of animal species (cat, rat, insects) and information about them as in a text book.

The above examples give insights into Dion's developing interest in site-oriented works, material culture, performative elements and the inclusion of his own personae. Art historical interpretations of Dion's works from the 1990s have focussed largely on concepts of site and social practice. Kwon (1997a, p. 25) described Dion's work as site-oriented art practice (or 'Kontextkunst', i.e. context-art) rather than as site-specific, which typically refers to art/performance shaped by the specifics of an architectural or landscaped environment in which it unfolds. Site-oriented practice in this sense is often associated with institutional critique. Bishop (2012) draws attention to participatory processes—art as project—within and outside art institutions that emerged around the early 1990s to frame Dion's early works. This period was informed by a new social, participatory and activist orientation in making artworks, which required a process-based approach to exhibition-making. This 'not only changed the artists' relationship to the work of art (which became a set of more or less finely tuned social relationships . . .), it also changed the viewer's relationship to seeing art' (Bishop, 2012, p. 205). Dion's understanding of context and site together with social practices and audience relations as well as, to a degree, activism are core to the making of the work discussed here.

Dion's site-oriented way of working with scientific, environmental knowledge and museological approaches has influenced artists and cultural institutions alike. His own artistic practice has been inspired by a generation of American and European post-war artists that include Joseph Beuys, Marcel Broodthaers, Gordon Matta-Clark and, in particular, Robert Smithson, and their relationships to spatial and geographical environments (Kwon, 1997a, p. 19). The site-specific approaches

and relationships that artists developed in the 1960s and 1970s were reworked in the late 1980s and early 1990s, when it was not just the spatial environment, but the social, historical and political contexts that artists referenced. A critique of the mechanisms of exhibition-making, displays and audience reception became interlinked with broader social and art criticism discourses (Michalka, 2015a).

In the 1990s, artists' projects, including Dion's, were thus characterised by multiple and overlapping uses of the notion of site (Kwon, 1997b, p. 92). These process-based works create relationships to the location as site, the social and institutional frame as site and the discursively determined site as a field of knowledge. Site-oriented practice demands an itinerant artist—like Dion—to undertake research into the locality, the institution and its audiences. Such practice encompasses the parameters of the exhibition itself, its thematic structure, social relevance, the role of other artists as well as other collaborators for the production of the work and finally the discursive formation of the field of knowledge (Kwon, 1997b, pp. 100–101).

Dion's *On Tropical Nature* (1991) is an example of a performative work that takes its cue from a curatorial exhibition proposition. Made in and for the context of a museum space in Venezuela, the work was built on the component sites of fieldwork, the exhibition, curatorial practices and its institutional setting. Kwon (1997b, pp. 92–93) identifies several different definitions of site that operated concurrently in *On Tropical Nature*: first, the site of Dion's 'intervention', in this case an uninhabited 'spot' of rain forest outside Caracas, Venezuela, where the artist camped for three weeks to collect specimens; second, the site of the two hosting art institutions in Caracas, to one of which the collected specimens were sent; third, the curatorial framework of the thematic group exhibition at the art gallery space; and fourth, the 'discourse concerning cultural representations of nature and the global environmental crisis'. *On Tropical Nature* was later reconfigured for the 1992 work *N.Y. State Bureau for Tropical Conservation* at American Fine Arts, Co. in SoHo, New York.²² Here, Nikolaus Nessler was introduced

22. The commercial gallery supported artists working with site-specific practices. Other such galleries at the time included Christian Nagel, Cologne (Germany) (Michalka, 2015b, p. 22).

to Dion's work, prompting him to invite the artist to participate in the *Arté Amazonas* project.

From 1991 onwards Dion developed performative works in which material practice as knowledge was often demonstrated and critiqued. He thematised in particular the environment of the tropical rainforest through the singular perspective of the naturalist-collector. The naturalist on expedition in the tropics provided a focal character through which to condense cultural anxieties, as inferred by Dion, around the methodological translation from the encounter with 'wilderness' into systematic knowledge (Heidemann, 2005, p. 137). For the work in Rio de Janeiro Dion's material method was to collect soil samples and specimens from within the field. These finds were then epistemologically transformed in dialogue with a public through performative actions. The fieldwork finds were ordered, archived and displayed and shown together with the material culture of instruments, tools and storage receptacles. Members of the public were allowed to handle the materials on the table while the performance was on-going (Heidemann, 2005, p. 151). In *A Yard of Jungle* Dion performed material 'evidence' as a process of seeing, sensing and touching a tropical environment, a 'Vor-Augen-Führen in actu' [literally: to present something before your eyes], which was linked to bodily, affective and interactive moments in a performative setting, demonstrating knowledge as material practice (Peters, 2014, p. 491).

A Yard of Jungle was partly re-enactment, partly interpretative repetition of Beebe's practices and a subversion of the systematic methodology of referencing and archiving the natural world. Dion's performance referenced past events and practices, which in this case-study analysis is referred to as 're-performance'. The term is to avoid any confusion with the common understanding of re-enactment as a method that primarily seeks authenticity in mimicking past events through present actions and procedures. Taken as a more complex concept, re-enactment, according to Schneider (2011) also embodies 'recalcitrant possibilities for return (doubling as possibilities for error). The zillion details of the act of interpretation in an act of live repetition make the pastness of the past both palpable and a very present matter' (Schneider, 2011, p. 30). Dion drew attention to the differences and

similarities between past and present by using elements of re-enactment and made changes in procedures through interpretative repetition.

Heidemann (2005) uses the notion of the 'dilettante', a term whose use had more positive connotations until the mid-eighteenth century, to analyse Dion's artistic method of performing scientific and expeditionary practices in relation to naturalist protagonists. This strategy allows Dion to act as someone who takes great pleasure (*diletto* in Italian meaning admiration or love of learning about art and science) in his work and yet to remain somebody who is not wholly identified as a scientist because he did not 'train' as such. The trope of the dilettante supports the gaps in expertise Dion created to distance himself from his scientific predecessor and model protagonist, Beebe.

The re-performance of scientific methods relies on the sedimentation of language, instruments and practices (Latour, 1999, p. 30). Dion's re-performance became a sequence of 'sedimented acts' and meanings, which affectively transmitted the displacement and disappearance of the rainforest through showing and telling. His architecture of access, the table within the exhibition space with its material assemblage of specimen, instruments and the artist himself, placed the audience in experiential relations to knowledge and meanings generated by the artwork (Schneider, 2012). Repetition with difference, deliberate or inadvertent, creates the opportunity to achieve something genuinely new, such as drawing attention to a visual quality of a material.

The role Dion assumes in the process of re-performance was not just that of an amateur scientist; through his conceptual framework he also acts as an 'artist-as-historian' in re-performing historic sources (Godfrey, 2007). Anthropological historian Greg Dening (1996) describes how history is made between its discovery—within documentary sources, photographs, objects, texts, clothes, behaviour and the spaces of 'nature'—and its invention through the re-performance of these sources. Dion both discovers history and invents history, presenting himself, in his idiosyncratic way, as a trans-historical and a trans-disciplinary figure who combines artistic and scientific practices by creating narratives through/with objects, dialogues and texts. Coles (1999) interprets Dion's critical strategies for 'fictitious encounters' with historic protagonists and the re-performance of scientific practices

as an analytical research process. But, as Dion points out elsewhere, ‘The process is hard to get a grip on because I am not acting, I’m not a character, I’m not pretending to be someone else’ (Kwon, 1997a, p. 25). Through performing both roles, his own and that of the historic protagonist’s, Dion reprises, yet creates difference from the original situation. He immersed himself in the fantasies of exploration—discovered, as a historian would, and invented, as an artist would—and male endeavours within staged spaces of scientific adventure. Yet his mode was subjective, knowingly amateur and (in moments) ironically inquisitive. This deliberate in-authenticity created a disjunction between the historic original and the later re-performance. Because of this rift between original and repetition, it is possible to ask how present these historic fantasies still were at the time of making *A Yard of Jungle*.

According to Dion, his underlying motivation in this work was to draw attention to the environmental destruction of the Amazonian rainforest. His performance, the installation’s materials and the sites were thus combined to generate an archive of a natural environment and the cultural construction thereof through archival practices and discursive statements. In situating the work in the context of the 1992 Earth Summit, Dion created a montage within the framework of the sculptural tableau of the *Yard of Jungle* within which discourses, materials and forms of expressions came together: global environmental politics, patronage, art institutions, science, exploration, literature, exhibition and performance. Together they told the tales of the Amazon on a domestic scale (Raffles, 2002, p. 148).

4.2. Performing spaces: *Arté Amazonas*

The *Arté Amazonas* exhibition took place within a period during which the format and purpose of temporary exhibitions was being widely questioned. In art-historical and social contexts, the exhibition became a subject to be theorized as a site of exchange in the economy of art, as a site for the construction of meaning and signification, as structuring device and as socio-historical event. The forms and claims of exhibitions were critiqued as selective and exclusive, constrained by organizational biases, space, finance and availability of works and artists (Greenberg, Ferguson, & Nairne, 1996, pp. 1–2). ‘Thinking about exhibitions’ had

gone hand in hand with changing forms of artistic practices and systems of representation. Public spheres, audience participation and reception, site-specificity and contextual production of meaning became linked in artistic theory and practice (Michalka, 2015b, pp. 18–19). The new thinking about exhibitions was also prompted by an increasingly global dimension of contemporary art, fostering social and cultural exchanges.

The *Arté Amazonas* project was initiated by Alfons Hug, a curator from the Goethe Institut, Brasília, together with German artist Nessler, who also lived in Brazil at the time (Hug [?], n. d.). The project encompassed a series of international artist research residencies in Brazil, at Belém, Manaus and Porte Velho.²³ The residencies were intended to engage with the Amazonian environment through artists' subjective perspectives. The project's method was to assume a workshop character to find new ways of making artworks integrated into the local infrastructure and community. It was designed to challenge international artists, as representatives of a global art world, to make their works of art solely with local materials and during their time in Brazil for the *Arté Amazonas* exhibition. Video documentation by John Arden (1992) established the residency locations and introduced work in progress by some of the artists.²⁴ All the locally produced works went on show together with film projects by indigenous artists from the Amazon region. Following the exhibition in Rio de Janeiro, the works toured to Brasília, São Paulo and Berlin.²⁵ The project was accompanied by an exhibition catalogue documenting each artist's contribution. It featured artists' texts, numerous essays

23. Artists projects at Belém were by Marina Abramović (Yugoslavia), Luiz Braga (Brazil), Mark Dion (USA), Rolf Julius (Germany), Kazuo Katase (Japan), Karin Lambrecht (Brazil), Emmanuel Nassar (Brazil), Pere Noguera (Spain), Pedro Romero (Spain), Julião Sarmiento (Portugal); at Manaus by Montien Boonma (Thailand), Waltércio Caldas (Brazil), Maria Fernanda Cardoso (Columbia), El Anatsui (Ghana), Rainer Görss (Germany), Alfredo Jaar (Chile), Björn Lövin (Sweden), Tunga (Brazil); at Porto Velho by Antony Gormley (Great Britain), Christian Lapie (France), Nikolaus A. Nessler (Germany), Raffael Rheinsberg (Germany), Miguel Rio Branco (Spain), Bill Woodrow (Great Britain); additional projects in Território Yanomami by Milton Bécerra (Venezuela); Rio de Janeiro by Felix Droese (Germany); Rio Solimões, Rio Purús by Mario Cravo Neto (Brazil); Altamira (Pará)/ Xingu by Pitu, Miti, Kukran, Arquimedes.

24. The video *Arté Amazonas* was made in 1992 and is about 50 minutes long. The video does not contain any footage of Mark Dion. Retrieved from <https://www.youtube.com/watch?v=5zHpcsxQGlg> [accessed on 21 December 2016].

25. Exhibition venues were Museu de Arte Moderna, Rio de Janeiro; Museu de Arte, Brasília; Bienal de São Paulo, Parque Ibirapuera; and Staatliche Kunsthalle Berlin in 1993.

providing introductions and discussions of the project's thematic breadth, and writings on the tropics as the artists' studio. Essays on Amazonian indigenous cultures and their relationships with the rainforest were also included. A piece of writing by Ailton Krenak, representative of the Krenak people, and the Resolution of Indigenous Peoples, Paris 1991, indicate the project's commitment to alerting audiences to the urgency of preserving human cultures within their natural environment. The 1993 Berlin edition of the catalogue, entitled *Klima Global: Arté Amazonas*, also contained UNCED (United Nations Conference on Environment and Development) documents of the Rio Earth Summit: the *Rio Declaration on Environment and Development*, the *Framework Convention on Climate Change* and the UN report informally titled *Forest Principles*. The publication of these documents within the catalogue spoke to a commitment to the activist and political framing of the exhibition. The *Arté Amazonas* project was managed by the Goethe Institut, with support from the German Foreign Office, and was a collaboration with the Museu de Arte Moderna in Rio de Janeiro. Sponsors included the Siemens Kultur Programm and Lufthansa.

Dion's artwork responded to the workshop character of the project. His own process-based practice consisted of two sequential main activities: firstly, his own fieldwork in a forest near Belém, mainly referring to the 1915 fieldwork by Beebe in Pará (modern-day Belém); and secondly a public performance, which took place over a few consecutive days, emulating a naturalist's research practice at a table work station. The table was made by Dion from locally-sourced materials in the exhibition space at the Museu de Arte Moderna in Rio de Janeiro in June 1992. Following the performance, the table was left like a tableau to display the assembled specimens and soil samples from the fieldwork together with the tools used for their preparation and examination. But no animals or plants were identified in the performance, for accurate documentation was not its purpose.²⁶ Instead the purpose was to create a culture of access to the experience of nature, to engage members of the public in that experience, yet then to thwart that very experience, set within the sites of the institutional exhibition space and the political

26. Mark Dion, interview with the author, 27 June 2016.



Figure 4.1.
[Unknown photographer]. (13 June 1992). United Nations Conference on Environment and Development (UNCED), 3–14 June 1992. A general view of world leaders meeting during the Summit Segment of the Conference. Rio de Janeiro, Brazil. [Photo #122944. United Nations Photo Library, New York City].

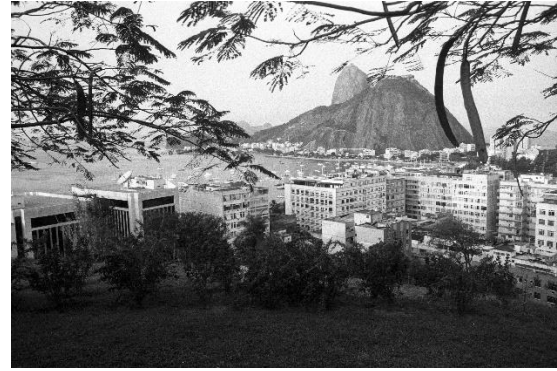


Figure 4.2. [Unknown photographer]. (11 June 1992). The '92 Global Forum, Brazil, 1–12 June 1992. A view of Rio de Janeiro, Brazil. [Photo #281256. Credit: United Nations Photo Library, New York City].

As the world leaders and their delegations met for the United Nations Conference on the Environment and Development (UNCED), or Earth Summit, from 3–14 June 1992 in Rio de Janeiro, Brazil, an unprecedented number of non-governmental organizations (NGOs) convened in Rio for the 1992 Global Forum. The '92 Global Forum, held in the Flamengo Park, provided an informal opportunity for NGOs to express their views. The Forum featured speakers, exhibitions and cultural events [UN photo library caption].

environment of the Earth Summit. In Dion's work these sites were aligned in his aim to inform audiences about, engage debate on, and potentially avert, environmental destruction.

Presented as 'Our Last Chance to Save the Earth',²⁷ the 1992 Earth Summit was to address a global crisis of deforestation, threats to biodiversity and anthropogenic climate change. Cast as 'a historic moment for humanity' in the closing words by Maurice Strong, Conference Secretary-General of the first United Nations Conference on Environment and Development, the summit marked a moment not only in human history, but also a moment in biological time ('Strong', n. d.). The Rio conference itself gathered 172 international government participants (Fig. 4.1), while the parallel '92 Global Forum of non-governmental organizations was

27. This follows the Stockholm Conference in 1972, which was subtitled 'Only One Earth'.

attended by about 2,400 representatives and 17,000 attendees (Fig. 4.2). The city's cultural institutions also responded with international art exhibitions and events, setting a precedent for many subsequent UN conferences and Conference of the Party (COP) meetings. A cursory survey of exhibitions coinciding with the Earth Summit in various museums in Rio reveals that international Western as well as indigenous artists' works were shown. The latter works were framed either as artworks or as ethnographic artefacts.²⁸ The scale of engagement was unprecedented for a UN conference. Its message: the urgent necessity of a transformation of attitudes and behaviour to halt the destruction of irreplaceable natural resources and the pollution of the planet. The so-called *Agenda 21* (United Nations, 1992), a document of more than 300 pages, became the blueprint for action to achieve world-wide sustainability through global partnership. The summit thus responded to growing alarm at the pace and scale of environmental destruction.

In his initial exhibition proposal for *Arté Amazonas*, co-curator Hug outlined the global geopolitical context and environmental agendas which the global art community would address, highlighting in particular the historical role and continuing significance of the Amazonian region in the realm of the imagination (Hug, 1990). He referenced a wide-ranging cast of Europeans who had shown an interest in the region: Spanish explorer Francisco Orellana, who travelled the River Amazon (1541–1542); revered naturalists Alexander von Humboldt who travelled in South America at the turn of the nineteenth century; and the travels by German-Russian Georg Heinrich von Langsdorff in the 1820s; Werner Herzog, director of the surreal film *Fitzcarraldo* (1982); and British musician Sting (Hug, 1990). The imaginaries of explorers and industrialists, together with the realities of the regions' indigenous peoples and the exhaustion of the rainforest, thus informed the curatorial proposal. Herzog's film famously features the 1897 Manaus opera house,

28. The main site for exhibition of contemporary art was the Museu de Arte Moderna in Rio de Janeiro. Other exhibitions included *Masters of the Arctic* at the National Historical Museum, which showed, among other works, 150 pieces created by the Arctic people of Canada, Alaska, Siberia and Greenland; *Cayapo Science: alternatives to destruction*, which showed ethnographic artefacts and artworks from Brazil's Cayapo Indians; *Reperti: the environment seen by 20 renowned international artists*. ['reperti' is Italian for 'archaeological findings'], a show sponsored by the Italian Government at the National Museum of Fine Arts (Brooke, 1992).

a sign of the riches brought to some by the rubber trade between 1870 and the First World War. The wild-rubber industry underwent several successive booms and made not only the city of Manaus but also the port city of Pará opulent cities. Southeast Asia rubber production overtook Amazonian wild rubber on the world market in the early twentieth century and by 1919 the Brazilian industry had collapsed. Rubber production in the nineteenth century, which entailed the cultivation and collection of the secretion of the *Hevea* tree, resulted in the brutalization of and enslaved the Amazon's indigenous inhabitants. Many tribes, for example the Huitoto, the Bora and the Andoke, were devastated (Brockway, 1979, pp. 458–459). Sting is one of the 1989 founders of the Rainforest Foundation, campaigning for the protection of the rainforest 'through empowering the indigenous peoples to defend their ancestral lands' ('Rainforest Foundation', n. d.). These environmental, industrial and political contexts permeated first the selection of artists able and willing to engage with these issues, and then the making of the artworks.

The initial project proposal in summer 1990 outlined the curatorial structure of a series of workshops connected by 'fluvial' journeys providing direct environmental experiences while travelling between the workshop-venues. The document also outlined funding opportunities and administrative details such as plans for insurance, medical assistance, malaria and yellow fever prevention—typical concerns of any expedition into the tropics. The themes to be addressed, according to the curatorial proposal, were the conservation of the Brazilian rainforest and the experiences of indigenous peoples. The relationship between humans and the natural environment would be explored by assembling a local–global playing field of international artists who would work with local infrastructures and materials. The forest was to offer a place within which artists could intensely experience the environment and themselves within it. Moreover, the residency experience was to bring artists from different cultural backgrounds together, removed from their own environments, transported into the tropics. This experience was to determine the direction of the work and the level of interdependency between art and nature. It was stipulated that the materials used in the works would be regional and/or recycled materials and had to be fabricated within three weeks. The artists had to

spend time together within an infrastructure set up by the exhibition project and were supported by young, locally-based artists in the production of the works (Hug, 1990, 8 August). Hug (1992, 20 January) anticipated that the works would be 'in situ' sculptural installations, which the artists created within either spatial or discursive situations, or both.

In their selection of artists, co-curators Hug and Nessler were advised by international museum experts (Hug, n. d.). The selectors were from German and Brazilian cultural backgrounds, with curator Berta Ribero from the Museu Nacional in Rio de Janeiro specifically representing expertise in indigenous art. The *Arté Amazonas* project was partly inspired by the 1989 exhibition *Magiciens de la Terre* [Magiciens of the Earth] in Paris,²⁹ which marked a period of exhibition making concerned with cultural decentralization and the notion of the cultural, artistic object.³⁰ *Magiciens de la Terre* set out to treat 'contemporary art production on a global, worldwide scale' (Buchloh, 1989, p. 152), yet primarily sought to understand 'what we do ourselves' (p. 155). Curator Jean-Hubert Martin thus selected works from various cultures according to his own experience and sensibility to create a visual and sensual experience. *Magiciens de la Terre* showed the work of individual artists, rather than of schools or movements, selected through a Western European aesthetic, juxtaposing contemporary art from Asian, African and Latin American countries with works from the United States and Western Europe. The works were shown in a decontextualizing exhibition format, favouring the installation structure. Because of the lack of contextualising descriptions and interpretations, the Western viewer was presented with the curators' (and perhaps their own) fascination with apparently exotic art in detached transcultural contexts. This seems to have been a

29. Comment by Nikolaus Nessler, interview with the author, 10 July 2016.

30. *Magiciens de la Terre* was curated by Jean-Hubert Martin (with the assistance of Mark Francis, Aline Luque and André Magin) for the exhibition spaces of the Centre Georges Pompidou and Grande Halle de La Villette, Paris. Key examples of postcolonial exhibitions in the USA and UK in the late 1980s included *The Other Story: Afro-Asian artists in post-war Britain* (1989-1990), curated by Rasheed Araeen, Hayward Gallery, London; as a much critiqued example, *Primitivism in 20th Century Art* (1984) curated by William Rubin, MOMA, New York; and *Lost Magic Kingdoms and Six Paper Moons from Nahuatl*, selected and arranged by Eduardo Paolozzi (1985) Museum of Mankind, London; and *The Hidden Peoples of the Amazon* (1985) Museum of Mankind, London. For a critique of these latter two exhibitions and the inadvertent representations of the processes of colonialism see Coombes & Lloyd, 1986.

fascination with cultural uprooting, rather than an understanding of mutual influences and transformations of cultures (Weiss, 1992).

Magiciens de la Terre was much criticized for its decontextualizing approach and faulted for being a Western colonial imposition (Lafuente, 2013, p. 17). While its curatorial ambition to be internationalist is often acknowledged in accounts of transnationalism in exhibition making (Steeds, 2013, p. 25), the exhibition's significance in communicating multiple modernisms and its position vis à vis colonialism continues to be debated.³¹ A core conundrum was that cultural, religious and aesthetic differences between the works in the exhibition were not articulated. Yet the selection, made from the perspective of contemporary anthropology, was meant to be a corrective to an outmoded hierarchical model in which non-Western cultures were deemed less developed than those in the West (Brett, 1993). After four years of preparation *Magiciens de la Terre* did coincide with the significant political events of 1989: the fall of the Berlin wall and the end of socialist regimes in Eastern Europe, the Tiananmen Square massacre in Beijing, the election of F. W. de Klerk as president of South Africa and the beginnings of reforms to undo apartheid and free elections in Chile and Brazil. The year marks the arrival of what is now understood as 'global art', with its characteristics of comparative knowledge production and transculturation and the pluralization of possible identities (Vogel, 2013). Against this backdrop of globalization and post-colonialism, critics and curators became more attuned to the work of artists from the global South and their struggles against continued marginalization (Michalka, 2015a).

Questions of the relations between Western modernism and indigenous aesthetics and cultures opened up through *Magiciens de la Terre* were only peripherally raised in the *Arté Amazonas* project. Metken's *Arté Amazonas* catalogue essay contribution, 'Studio of the Tropics', raised the question of whether it was even possible to successfully bring together artists from different 'fields and stylistic schools' (p. 220). *Arté Amazonas* was less driven by transnational aesthetics than by its concentrated focus on a common theme, that of environmental deterioration. In the wider context of the *Arté Amazonas* exhibition, we might ask

31. An archive of the reflections on and debates about the exhibition was shown in *Magiciens de la Terre. Retour sur une exposition légendaire* at the Centre Pompidou in Paris in 2014.

what is said about the environment and who gets heard? Who sits at the not just metaphorical table (Fig. 4.1.) and who sits at the 'shadow' table (Sekula, 1986, p. 10) of those constituencies that might not be represented? Around the time of the Earth Summit, prime causes for deforestation were pasture expansion for cattle, colonist agriculture and fire-based forest clearance by large-scale landowners. Gold mining and mercury poisoning had also produced catastrophic effects for human health and the environment (Hecht & Cockburn, 1990, pp. 266–268). In the period between 1900 and 1957 the numbers of indigenous peoples had fallen from one million to two hundred thousand and some eighty Indian tribes had been destroyed. Many surviving tribes, mostly living in the Amazon basin, were on the verge of extinction, de-cultured and in despair (Hecht & Cockburn 1990, pp. 153–154).

The Rio Earth Summit of 1992 lent urgency to the campaign against the destruction of the biodiverse environment of the Amazonian region and other similarly threatened environments. In this context natural scientists have frequently cast themselves as archivists and defenders of a disappearing world (Raffles, 2002, p. 152). With the *Arté Amazonas* project, it was the exhibition curators and artists who assigned themselves to the roles of archivists and defenders of the Amazon region. The *Arté Amazonas* project responded to this situation by showing works made by and about indigenous people in the exhibition, including those by artists Milton Becerra (Venezuela, then living in Paris) and Mario Cravo Neto (Brazil, then living in Salvador/Bahia). There were videos made by Pitu/Miti and Kukran/Arquimedes in Xingu and Altamira in the period 1988 to 1989. These works documented indigenous ways of living in the Amazonian region from their own perspectives.

Dion's contribution to the historic moment of the Rio Earth Summit chimed with the politics of a new global, environmental and cultural consciousness. Through the prism of the male naturalist–explorer within the curatorial proposition of *Arté Amazonas*, his work dramatized three interrelated issues: the spirit of transnationalism in the global art world that emerged with the end of the Cold War in 1989; the idea of Amazonia as a place of environmental crisis, which has forged coalitions not just between global and indigenous artists, but also between artists

and scientists; and Amazonia as place, imagined through Western exploration, as laid out in the curatorial proposal and as practised through Dion's work. In the vision of the *Arté Amazonas* project curators, the Amazon region served as a stage for selected international and indigenous artists. In discussing the work of Ghanaian artist El Anatsui, who participated in *Arté Amazonas*, artist and art historian Olu Oguibe (2004, p. 106) interpreted the broader project as a visitation that reiterated the narrative of invaders rather than the narrative of the Amazon and its people. Although cultural decontextualizing and narrow perspectives caused by falling back into stereotypes inevitably trouble temporary transnational exhibition projects such as *Arté Amazonas*, such endeavours can embrace a diversity of visions by artists that open windows onto anthropogenic and natural environments and its inhabitant peoples. In contrast to Dion, another contributing artist, Julião Sarmento from Portugal, dwelt on the outsider perspective of the visiting artist and the violence of the intruder's gaze. In the installation *Amazônia* (1992), a crudely constructed wooden room, made from found planks, remained closed to the visitor. In between the wooden planks glimpses into life in the Amazon were offered as 'a peepshow' (Hug, 1992, p. 216) of 'male phantasies bred of violence and eroticism which transform the onlooker into a voyeur' —weapons, copulating couples, a strangled 'Indio'—a 'proscenium theatre' in which the floor was heaped with red earth and strewn with trash of the kind seen littering the streets and rivers. Though the documentation of the works by the indigenous artists of the *Arté Amazonas* is scant, the project was an attempt to bring in the concerns of different peoples, and specifically local peoples and the injustice they experience. The exhibition thus aimed to connect artists from around the globe with indigenous artists from South America through the environmental context of the Brazilian rainforest and the politics of the Rio Earth Summit. In this respect, the *Arté Amazonas* project was symptomatic of an emerging interest in experimenting with new forms of transnational exhibitions, making a move towards a more research-driven and, consequentially, a less commodified approach to making art.

Mark Dion's project was research-driven in two senses: firstly, it involved artistic experiment in the use of materials and a workshop aesthetic, engaging in dialogue with science and its publics; and secondly, it required an engagement with

scientific, literary writing as well as ecological fieldwork and laboratory study constructing the tropical environment from the American, metropolitan perspective. Dion's practice fully embraced the project's workshop characteristics. He even brought the workshop into the exhibition space of Affonso Eduardo Reidy's modernist concrete building of the Museu de Arte Moderna, which is situated within the urban and equally modernist Flamengo Park. But his interest was not in exploring the rainforest through human indigenous cultures, nor in critiquing the culture of industrialization, not in this project at least. *A Yard of Jungle* was not a post-colonial project. Instead Dion, not especially sensitized to the political movements in Brazil at the time, adopted a critical, historical approach to the construction of nature through the figure of Beebe as scientist-explorer-adventurer. Within the confines of the yard as measure and from his jungle table, Beebe had created defined spaces from which to explore, imagine and construct the tropical environment. Dion, in turn, enacted a reprise of these scientific and imaginary constructions.

4.3. Fieldwork in Pará, Brazil: performance and re-performance

To understand the conception and manifestations of Dion's work, we need to return to Beebe's way of working, its historic particularities and his own fieldwork in Brazil. Following this, I shall provide a description of the fieldwork's re-performance by Dion. A rich lineage of natural-historical writing and fieldwork has rendered the Amazonian region a heritage site of planetary biodiversity (Raffles, 2002, p. 152). Beebe himself found inspiration in the work of nineteenth-century British travellers to the region, notably Alfred Russell Wallace (1823–1913) and Henry Walter Bates (1825–1892) (Beebe, 1915). Pará had been both Wallace's and Bates' place of residence and Beebe was keen to see what had changed since their time in the estuarine city.

During his own trip to Pará, Beebe visited different areas of the rainforest, photographing flooded sections (Fig. 4.3.). Water, or *pará* in the language of the Tupinambá indigenous group of coastal Brazil, characterizes the landscape environment of this state (Diefenhardt, 1992, p. 87). Beebe saw Pará and its



Figure 4.3. [Beebe, W.?]. [ca. 1915]. Tropical jungle near Pará [Photograph with caption. Detail Page 1243. Reproduced in: Beebe, W. (1915) Zoological notes from Pará. *Zoological Society Bulletin*, XVIII(4). 1241–1243. [Screen shot].

environs through Bates' eyes: for him, Bates' description of the rainforest in the vicinity near Pará in *Naturalists on the River Amazon* (1863) still held true. Within a few minutes' walk of the new electric tramway, Beebe found himself in the realms of the tropical jungle, just as (or so he said) Wallace and Bates had witnessed it. He concluded that 'to the naturalist this city offers as rich a field today as at any time during its history' (1915, p. 1242). Beebe not only saw nature and changing environments through the eyes of nineteenth-century naturalists, but he was also influenced by the scientific ideas of his time and saw the natural environment from the perspective of an ecologist. Though already widely travelled as an ornithologist (Beebe, 1918–1922), Beebe was very much a metropolitan scientist steeped in a modern understanding of nature.

Beebe's written descriptions of exploration and scientific research, together with the photographic images that illustrate his reviews and essays, offer a window into the imaginary world of an adventurer-ecologist (Beebe, 1926). For a literary and general public Beebe narrated nature as a place of magic in which he encountered other species through their sounds, behaviours and materiality. He visited Brazil under the auspices of the New York Zoological Society. His task was to assemble and supervise a transport of animals from the Zoological Gardens at Pará to New York, a plan that, according to Beebe, was met with some local opposition in

view of the considerable loss of animals and birds (1916a, p. 1307).³² At that time the Zoological Gardens of the Museum of Pará (and the Museu Emílio Goeldi itself) were in financial decline following the crisis sparked by the devaluation of Amazonian rubber in the 1910s ('History', n. d.). We can infer that selling animal species to the zoological garden in the Bronx at the time must have enforced a sense of cultural loss during the financial crisis. Beebe took back to New York an assortment of animals 'rich in birds of striking appearance, very desirable for exhibition', such as the Harpy eagle, hyacinth macaw, hawk-headed parrot, some birds rarely found in captivity and some valued for scientific interest (1915, pp. 1242–1243). In total, he exported 62 specimens comprising 43 species of Brazilian birds. Beebe prized the birds' display qualities, beauty and rarity, as well as their scientific values. And his journey was rewarded by visitors' enthusiasm for the collection. Only a few weeks following his return with the live birds, American poet Wallace Stevens wrote to his wife from New York on 25 July 1915: 'My dear Elsie: I went up to the Botanical—no: the Zoological Garden this morning to see a collection of birds that Professor Beebe has just brought up from Brazil. There was a hyacinthine macaw, chiefly of interest because I could see what colour hyacinthine really is!' (H. Stevens, 1966, n. p.).

32. As alluded to by Beebe in his 1916 article, 'Exploring a tree and a yard of jungle'. I have not been able to source the exact reasons for the dispute.

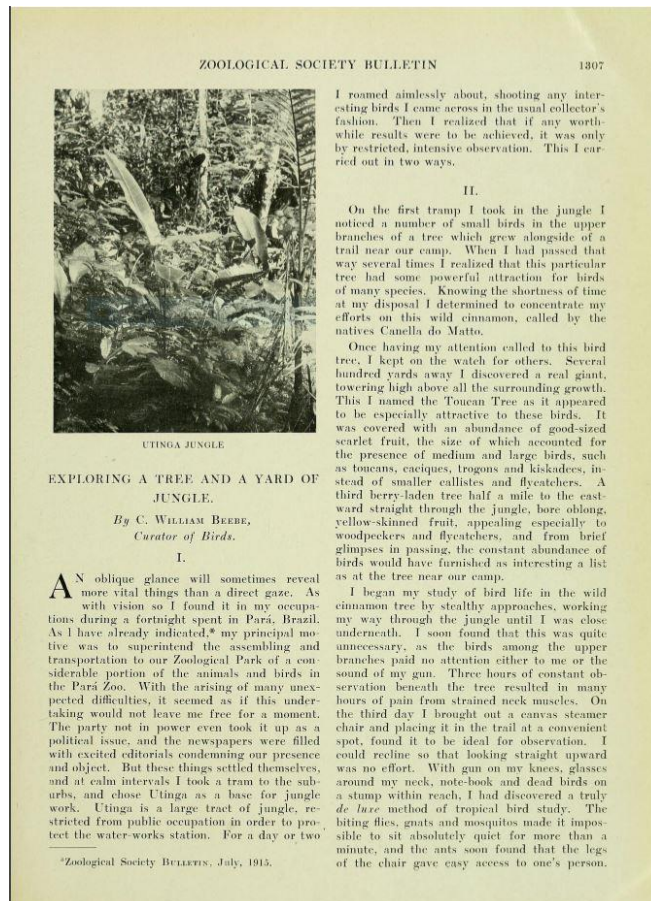


Figure 4.4. Page 1307
[Including photograph
[Beebe, W.?]. [ca. 1915].
Captioned: Utinga jungle].
Beebe, W. (1916). Exploring
a tree and a yard of jungle.
Zoological Society Bulletin,
XIX(1). New York Zoological
Society. 1307–1316. [Screen
shot].

The article page shows the
use of photography as
illustration and the
relationship between text
and image.

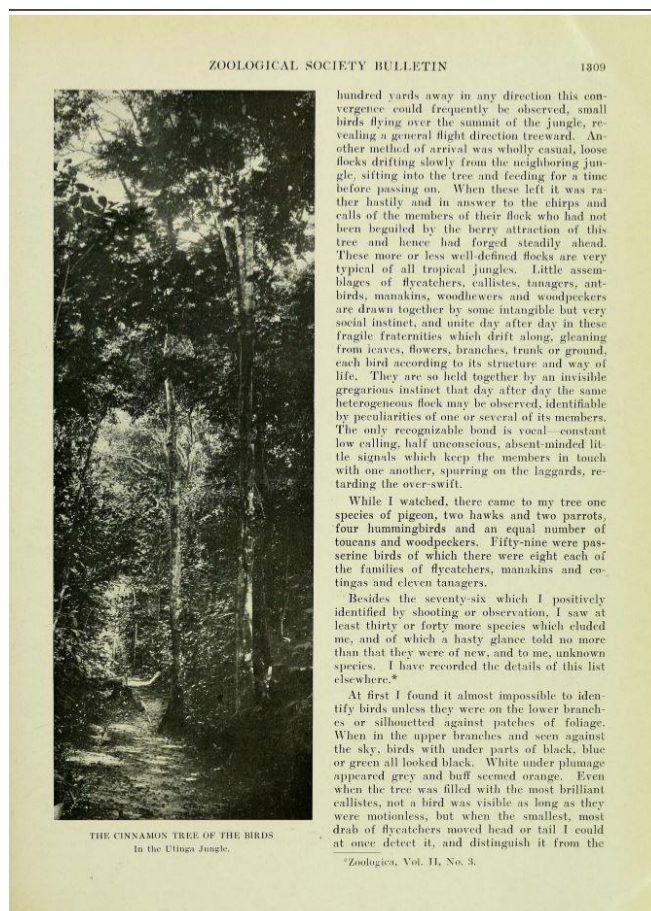


Figure 4.5. Page 1309
[Including photograph
[Beebe, W.?]. [ca. 1915].
Caption: The Cinnamon tree
of the birds in the Utinga
jungle]. Beebe, W. (1916).
Exploring a tree and a yard
of jungle. *Zoological Society
Bulletin*, XIX(1). New York
Zoological Society. 1307–
1316. [Screen shot].

The trail leading towards the
field collection site.

Using Pará as his base, Beebe had sought out a convenient location where he could study tropical nature in situ: 'I took a tram to the suburbs, and chose Utinga as a base for jungle work. Utinga is a large tract of jungle, restricted from public occupation in order to protect the water-works station' (1916a, p. 1307) (Fig. 4.4.). After Beebe had 'roamed aimlessly about, shooting any interesting birds . . . in the usual collector's fashion', he considered 'restrictive, intensive observation' (p. 1307). He then studied the bird life on a cinnamon tree from a stationary position, concentrating his 'attention on the tree and the surrounding jungle, endeavouring to fix it indelibly in [his] mind' (1916a, p. 1310). Surveying the entire terrain, he divided the scene into strata from the lofty heights of the cinnamon tree's crown to the rainforest floor. His eventual selection of the square yard of jungle was influenced by the behaviour of a Tyrant antwren (*Cercomacra tyrannina*) (Beebe, 1916a) (Fig. 4.5.):

As I walked slowly up the trail toward the tree I heard a rustling among the leaves at one side, and in the deep shadow beyond a dense clump of scarlet Heliconias I made out a Tyrant Antwren scratching with all its might. . . . I had often wondered of what the food of these birds really consisted. (pp. 1310)

Following the small bird's search for food, Beebe scraped his collection of jungle floor into a bag and later took it on board the steamer *Stephen* of the Booth line. We can but imagine the workstation he and his colleague Hartley set up on the steamer. Beebe leaves us with the sensation of smells emanating from the small sample of rainforest, products of continuing chemical processes of decomposition. His account of these smells and textures evoke both the experience of fieldwork and the intensity of his study within the confines of the boat. He wrote from his table about the natural laboratory of the rainforest (Beebe, 1918):

And the smell of the mold, keen and strong as it came to my nostrils an inch away—it was pungent, rich woody . . . Leaves had fallen, not in a sudden autumnal downpour, but in a never-ending drift, day after day, month after month. With a daily rain for moisture, with a temperature of three figures, for the quicker increase of bacteria, and an excess of

humidity to foster quick decay, the jungle floor was indeed a laboratory of vital work. (p. 261).

In his visual scanning of the environment Beebe created mental strata, subdividing it into distinct, yet interrelated layers, including the defined area of forest floor within the environs of a single tree. By selecting a defined landmark, the tree, and by imaging a vertical column to study the area's biogeography, he created a stable site from which to observe. In describing the scene, his account of what he saw mingled with the evidence of imaginary interlocutors, including the science fiction writer H. G. Wells. In *Tropical wild life in British Guiana* (co-authored by Beebe, Harley and Howes and with an introduction by Colonel Theodore Roosevelt) (1917), the naturalists cite from Wells' 1915 novel *The research magnificent*:

Let men stew in their cities if they will. It is in the lonely places, in jungles and mountains, in snows and fires, in the still observatories and the silent laboratories, in those secret and dangerous places where life probes into life, it is there that the masters of the world, the lords of the beast, the rebel sons of Fate come to their own. (p. viii)

Beebe himself revelled in descriptions of places, outlining his subject position, sense of excitement and experiments. He elaborated on his experience of time and place from the perspectives of both the naturalist and the adventurer, as expressed in his writing for scientific journals and for more popular American magazines such as *The Atlantic Monthly*, *Harper's Magazine* and *House and Garden*.³³ Beebe wrote about his yard of jungle near Utinga in Pará in various publications, adapting tone and content for different publics. For example, his paper 'Exploring a tree and a yard of jungle', (1916) was published in the *Zoological Bulletin* of the New York Zoological Society. A different version appeared as 'Fauna of four square feet of jungle debris' (Beebe, 1916b) in *Zoologica*, a journal for scientific contributions for the New York Zoological Society. Meanwhile the essayistic narration of the fieldwork in Pará was published in the more popular literary journal *The Atlantic Monthly*, conceived as a democratizing, educational force to reach 'middle'

33. By 1924 the publication of magazines from the United States dedicated to literature, decorating, fashion, fishing, outdoor life, housekeeping, ran to 3400 monthlies (Goodman, 2011, p. 263).

Americans, whose circulation was placed at 117,352 copies by July 1924 (Goodman, 2011, p. 252). Beebe's popular writing offered the reader scientifically accurate knowledge of animals in their natural habitat together with the author's thoughts and feelings about the experience of nature. Crafted in a poetic style, his essay was designed to show the reader that scientific knowledge of nature gave emotional satisfaction and that the aesthetic experience of nature was deepened by scientific knowledge. The literary form of the nature essay, as adopted by Beebe, is emulated in the structure of Dion's *A Yard of Jungle*. For Dion, the essay intended for a non-scientific public is the most important type of scientific writing.³⁴ For his work for the *Arté Amazonas* exhibition, Dion thus placed himself into the early-twentieth century tradition of American nature writing, seeking like Beebe to provide access to tropical nature through artistic and scientific forms. By visually narrating the experience of fieldwork and study in the American tradition of the nature essay, Dion emphasized an aesthetic and emotional engagement with nature for exhibition audiences. His performative and sculptural work of art offered an aesthetic experience by representing elements of a naturalist's working processes. Both its referencing of Beebe's work and the curatorial exhibition context anchored Dion's intervention firmly in a tradition of a Western imagination of the Amazonian tropics—even though this might not have been obvious to his audiences.

Dion meanwhile chose the persona of the dilettante scientist-cum-archivist for his contribution to the exhibition. In the following reconstruction of his work I retrace the artist's performance prior to his occupancy of the exhibition space. Though it was clear that Dion had done fieldwork to gather the materials in the exhibition space, the fieldwork site was not referenced in the installation itself. The two images documenting the fieldwork were made public independently and became widely distributed in a monograph on Dion's work only later (Bryson, Corrin, & Kwon, 1997). Both images, an edition of 2, are still owned by the artist; one set is held at Tanya Bonakdar Gallery, New York, the other at Georg Kargl Gallery in Vienna. My description here however starts with the fieldwork to follow the sequential progression of the project.

34. Mark Dion, interview with the author, 4 June 2015.



Figure 4.6. Mark Dion *A Meter of Jungle* (1992). [2 colour photographs, black overmount, black frame.]. Photograph of the framed photograph: Georg Hofer, Innsbruck, Austria.

Gallerist Georg Kargl believes this work was first exhibited in 1992.

In the *Arté Amazonas* exhibition the work was referred to as *A Yard of Jungle*, but subsequently Dion refers to the work as *A Meter of Jungle*.

Tanya Bonakdar Gallery holds a copy of these images. The colour photographs are referenced as an edition of 2, white overmount, black frame, 70 x 53.5 cm (framed).

In Figure 4.6. we are looking at two photographic images of the rainforest. The two landscape format colour images, one directly printed above the other, depict exactly the same area, inviting comparison. In the centre of both images we see the

lower trunk of a tree within its rainforest environment. The thick tree trunk and its roots firmly implanted in the forest floor are surrounded by smaller plants with green foliage. Brownish leaf litter covers the forest floor. In front of the tree is a staked-out area of rainforest floor. The square appears slightly contorted, an effect of slightly elevated perspective by the photographer. The square is marked out by four wooden sticks and taut red tape that stretches about 10 cm above the ground. The photograph has been taken in daylight with some sunny patches of light to the right of the markings. The scene comprises plant vegetation and no animals—human nor non-human—are visible to the photographic eye. All this appears identical within both images, but there are significant differences within the square. On the upper image the square itself is still loosely covered in leaf litter with a green-leaved living plant inside and protruding above the red tape. The lower image shows a change: the staked-out area is smoothed to soil level. The area has been cleared of its leaf litter and the green-leaved sapling too is gone. The viewer's presumption is that Dion followed Beebe in collecting the debris of the jungle floor into his own type of 'war-bag' and took its contents, not onto the steamer to New York, but instead to the second-floor exhibition space at the Museu de Arte Moderna in Rio in June 1992. The list of exhibited works now in the Museum's archive includes Dion's *A Yard of Jungle*, its contents described thus: miscellaneous objects, tables, tree branches, soil, Amazonian insects and centipede from Rio de Janeiro (Hug [?], ca. 1992). The exhibition catalogue (1992, p. 97) simply states: 1 m³ rainforest soil—though of course Dion refers to the area as 'yard' and on the photograph we see a surface area rather than a volume of soil.

Like Beebe, Mark Dion did not act on his own but was heavily dependent on local circumstances and expertise. He too set out from Belém to find his yard of jungle in among the millions of hectares of Brazilian rainforest. There he met William Overal, entomologist at the research institution Museu Paraense Emílio Goeldi. The same museum was visited by Beebe in 1915 when it was directed by ornithologist and naturalist Emilie Snethlage, who is depicted in one of his photographs. In Spring 1992 Overal took artists from the *Arté Amazonas* project to

the Caxiuanã National Forest, about 350 km from Belém (Fig. 4.7.).³⁵ The exact locations of Dion's fieldwork are difficult to trace. The sites are not recorded—a specific geographical reference would be needed for scientific research purposes—and their locations are only identifiable in broad terms on the basis of recollection and textual description. Dion himself remembers that he spent time in two forests during the project, one of which was the Caxiuanã National Forest.³⁶ In their meeting Dion and Overal talked about Beebe's text and Overal took Dion to the protected research forest which he believed Beebe had worked in. It is from this forest location that Dion removed the fragment of rainforest floor. Unlike Beebe, who used a war-bag, Dion put the sample into zipper bags and large plastic boxes.³⁷



Figure 4.7. Entomologist William Overal. *Artists into Amazon. Arté Amazonas*, (1992). Video by John Arden [Video still photographed from TV monitor (2016)] Photograph: Bergit Arends.



Figure 4.8. Mark Dion on fieldwork [*On Tropical Nature*, 1991?]. Scan from reproduction in the exhibition catalogue *Arté Amazonas* (1992, p. 45).

35. Dion's square yard of jungle might in fact originate from there. In the exhibition catalogue, Hug (1992, p. 16) says that Dion went into the jungle to unearth a piece of forest floor, which he examined with the help of a Brazilian entomologist. Kraft-Lottner (1992, p. 45) narrates that Dion was driven from Belém and dropped off in a far-flung and uninhabited area of the rainforest. Both catalogue essays refer to the work of earlier naturalists, Henry Bates, Richard Spruce, Theodore Roosevelt (Hug, p. 16); or just the 'first great naturalists' (Kraft-Lottner, p. 46).

36. Mark Dion, interview with the author, 27 June 2016.

37. Mark Dion, interview with the author, October 24, 2015.

The sociability of Dion's sojourn in the forest was reflected in his time in the company of scientist Overal and sound artist Rolf Julius. In one of the forests he spent time just with Julius, who recorded the sounds of the rainforest for his work *How Loud is the Silence*. Apart from a single image of Julius and his recording equipment near the Amazon River in the exhibition catalogue, there is no visual documentation of their stay in the field (*Arté Amazonas*, 1992, pp. 101, 103). The photographs in the exhibition catalogue (1992, pp. 97–99) reference other fieldwork by Dion in the neo-tropics, notably his work *On Tropical Nature* (1991) in Venezuela. The origin of the photograph on page 45 in the exhibition catalogue is uncertain, but most likely belongs to *On Tropical Nature* (Fig. 4.8). Yet it was from this forest, where Dion had spent time with Julius, that the wood for the jungle table in the exhibition space was taken.³⁸

The quadrat staked out by Dion on the rainforest floor, like the presumably imaginary delineation by Beebe of four square yards of 'jungle débris', refers to a base unit of ecological study. The quadrat unit is still used to measure the distribution of species found within its surface area, and is adapted to marine habitats or tree canopies as a three-dimensional unit. This spatial unit, already in use when Beebe staked out his yard of jungle, underpins ecology's combination of field observation and quantification. It was first conceived by biogeographer and amateur botanist Roscoe Pound and lab scientist Frederic Clements in summer 1897, at a time when ecology was emerging as a new discipline (Kohler, 2002, pp. 100–107). The ecologist would stake out a square plot of appropriate size, count every plant in it and repeat this process until further sampling did not significantly change the averaged frequencies of species present—assuming the quadrats were located in representative parts of the habitat formation (Clements & Pound, 1898). The technique required knowledge, skill and experience. Quadrats were used for various purposes, crucially allowing ecologists to partake in the scientific culture of quantification. The quadrat thus combined numerical work and observation with the trained ecological and taxonomical eye. The vantage points for observation in the field could be crouching down or taking an image from higher up, assuming an

38. Mark Dion, interview with the author, 24 October 2015.

aerial perspective. Or when Beebe observed birds on the tree, he would crouch low, be very still and look up. As we have seen, while the quadrat worked in two dimensions, Beebe started to work on three dimensions, creating an imaginary column which determined 'depths': the jungle floor, lower jungle up to twenty feet; the mid-jungle up to seventy feet; the treetops or canopy zone, as high as 200 feet. Even the air above the treetops had to be considered in this schema in which the layers of flora and fauna were distinct (Gould, 2004, p. 198). The spatial imagination thus expanded with Beebe's concept of the imaginary column, becoming a virtual device to capture stationary and mobile species within a mapped space and a limited time frame.

Such superimposed, yet imaginary, boundary lines reflected the naturalist's effort to distance himself from the forest in order to observe it scientifically. Beebe's gaze from a range of bodily perspectives—crouching, sitting, standing—organized the landscape environment for him. With his body at the centre of the space to be observed, he practiced a typical distancing and reference marking practice within exploration and science (Latour, 1999, p. 29). The study of ecology works with such boundary lines staked out within the field, on the ground, by a person with a trained eye. The scientifically practiced space within an environment is here defined by a quadrat and a vertical space with the tree at its centre. Beebe imagined boundaries that delineated the Utinga jungle for his time-sensitive fieldwork, preparing the stage for his scientific research on the table surface within the steam boat and later the space of the table in British Guiana.

Beebe's field sites were more than merely ecological: they were also biographical, institutional and disciplinary. The field site in Utinga, near Pará, was discovered and selected through practical movements and moments of serendipity, combined with paying attention to the environment and the behaviour of its inhabitant birds, notably the Tyrant antwren. Beebe's subsequent written descriptions of the field site in Utinga and the table site in British Guiana—as selected by Dion—are both scientifically informative and engagingly emotive, designed to facilitate an easy access to the experience of nature. Dion's selection of field sites was just as pragmatic, only loosely referencing Beebe's collecting sites. However, the quadrat of the rainforest floor, set in relation to a tree, was the key

visual trope that makes reference to ecological collecting within an Amazonian tropical environment. Its horizontal shape, which so carefully revealed bare soil in the midst of a living habitat, also speaks indirectly of violence. It speaks of partitioning—the plastic tape provisionally slung around twigs—and of extracting knowledge through a Western imposition—of denaturalising and of delocalising.

From the work in the field as just described, Dion delocalized his own finds and moved his activity, again in reference to Beebe's working practices, to the study table. From here the artist re-performed the practices of ecological science and of the archiving of specimens. In the next section, I examine Dion's performative labour within the exhibition space and on the site of the study table. The materials within the study environment were used within a performance of scientific practice, from study to sorting to preserving to archiving. Dion re-performed these processes in person, partly in isolation, partially in interaction with an audience. Once the work was complete and the archive of the collection was created, the artist absented himself from the installation. What remained was the residue of an environment in archival form, an idiosyncratic design of sorts, but one that tantalizingly did not provide a path to access the materials and information it contained.

4.4. A jungle table at the Rio Earth Summit: performing environment-as-archive

The setting of Dion's installation and associated performances can be reconstructed through fragmentary descriptions gathered in correspondence with the artist and the collaborating scientist and in conversations with exhibition curators, as well as through documentary photographic images and subsequent written accounts. Amazonia has long been seen as an 'enormous, unsullied laboratory for the scientific contemplation and classification of nature' (Hecht & Cockburn, 1990, p. 15). Dion's work is caught up in the undoing of such a laboratory construction. He showed how a fragment from an environment was distributed, in materially diluted form, and how every stage of this process of delocalization and denaturalization created another world with its own references. In doing this, he opened up other views of the movements of materials and the worlds of trees, leaves, soil and invertebrates to contemplate, to inform and to seduce:

The stand in Rio de Janeiro was a table made of poles collected in the forest at which Mark sat under a pith helmet while he sorted small invertebrates in Belém leaf litter with a large magnifying glass. He invited on-lookers to see what he was finding.³⁹

This is how collaborating entomologist William Overal remembered Dion's performative installation *A Yard of Jungle* in 2015. The set of photographic images documenting the installation captures, in stills, some of the moments of the performative process. In these images Dion did not actually wear a pith helmet (Figs 4.9–4.13.). As documented by exhibition photographer Vicente de Mello in black-and-white images, the artist is seen performing the gestures and what appears to be the procedures of natural science in the installation space. Dion sits on a high, wooden stool at the table. The four table legs, held together with strings, are placed in tin cans, probably holding water to deter insects from creeping up the legs—as Beebe used to do for his own 'jungle table'. The poles (Beebe's tree saplings), which make up the table, had been collected by Dion in the forest he had visited with Julius.⁴⁰



Figure 4.9. Mark Dion *A Yard of Jungle* (1992) [Installation detail]. *Arté Amazonas* exhibition (1992). Museu de Arte Moderna, Rio de Janeiro, Brazil. Photographs: Vicente de Mello.

39. William Overal, interview with the author, 14 September 2015.

40. William Overal, interview with the author, 14 September 2015.



Figures 4.10.–4.13. Mark Dion *A Yard of Jungle* (1992) [Installation detail]. *Arté Amazonas* exhibition (1992). Museu de Arte Moderna, Rio de Janeiro, Brazil. Photographs: Vicente de Mello.

Together, the different materials of the installation, the clothing of the artist and the procedures of science in their composite material heterogeneity operate according to different temporalities. Through the various intersecting material and performative elements in the work, temporal readings come to the fore: the main, self-made table appears improvised and dated, in contrast with the two side tables complementing the centrepiece. Their design and materials appear more contemporary. The main agent of these procedures is the artist whose personae dates the installation to the 1980s/1990s. Dion is casually dressed in t-shirt and shorts, wearing high-ankle sneakers. He leans over a tray filled with leaf litter, holding tweezers and a brush. His work station is illuminated by an angle-poise lamp, its cable drawing electricity from a plug in the ceiling. The table is filled with paraphernalia from the expeditionary entomologist's tool kit: alcohol in plastic bottles, glass jars with screw tops, an assortment of magnifying glasses or hand lenses, numerous plastic containers, a zipped plastic bag with leaf litter, a wooden freight box, tea towels, a funnel. The two pre-fabricated tables with more bottles, jars and trays stand at a right angle to the one Dion is working on. In all of the images the artist is positioned at the centre of the hand-fabricated table; this is the focal point of activity. The scene is one of intimacy, representing intense, fine-skilled labour. Dion is hunched forward, holding a painter's brush, a pair of tweezers, a magnifying glass. He concentrates on the contents of the tray in front of him. The spot lighting points at the examination tray.

Dion is very careful about the distribution of images relating to his own presence in his work, whether on expedition or in performative exhibitions. Expedition images are usually taken by his friend and collaborator Bob Braine. Images of himself posing on expedition within the rainforest are frequently constructed to reference tropes of the tropical naturalist. Dion himself likens his posing as the naturalist-explorer to putting on a lab coat. Clothing, gestures, perspectives and landscape settings speak of the visual and discursive environment into which he merges as himself, the artist and as the type-character (Coles, 1999, pp. 52–53). In the still images released of *A Yard of Jungle* the artist is centre-stage. His performance is gestural and citational. He appears earnest, careful, loving—he

looked like a little Humboldt, joked co-curator Nessler.⁴¹ Although Dion did not actually aspire to be Humboldt, this was an obvious association to make given Humboldt's reputation as the best known of all explorer-naturalists. Overall misremembered Dion wearing a pith helmet, an accessory which is now often associated with the stereotyped nineteenth century explorer.

During the first days of the exhibition, Dion worked at his table on his field finds, often coming in before the museum opened to the public because 'that was the only time could really get the material processed'.⁴² The micro-organisms, primarily invertebrates such as insects and spiders, were almost too small to be seen with the naked eye and certainly cannot be seen in the photographic images. The organisms were carefully picked out of the leaf litter with tweezers and conserved in glass jars containing alcohol solution (one of the bottles has 'alcohol' written on it in black felt pen). The artist's work at his study table was finished when all the small animals he could find in the collected rainforest leaf mould were thus preserved. All jars were packed into boxes, some of which appear to be lying on the floor behind him. None of the jars were labelled and they were packed unsorted, as were the other materials, including soil, dried leaves, tree sticks, and small stones. For the remaining exhibition duration, the work station displayed the instruments and tools Dion had needed for his work, together with the boxes containing the preserved and sorted findings. 'In the *Yard of Jungle*, all that results from the research in the Amazon is a collection of invertebrates, almost all too small to be seen with the naked eye', explains Dion (Coles, 1999, pp. 53–54). All the evidence of the collecting impulse was stored away so that it was present, but in plastic boxes stacked vertically, its contents out of sight. The audience had to take it on trust that the collected fragments of rainforest were inside the boxes and on the jungle table inside the exhibition space.

In his performance Dion first emulated the forms of scientific study, then displayed its archival practices for an audience. How did the audience know who and what they were looking at? He seemed simultaneously absorbed in his work and approachable, and was happy to play with the authority conferred by his

41. Nikolaus Nessler, interview with the author, 24 July 2016.

42. Mark Dion, interview with the author, 24 October 2015.

adopted persona. In 'The Lexicon of Relevant Terms. Compiled on the Occasion of the Exhibition: *Natural History and other Fictions* by Mark Dion' (1997), the artist quips on how scientific procedures grant immediate authority to the person performing them. It is not just the practices of science which confer authority, it is also its instruments. In *A Yard of Jungle* the instruments seem simple, almost home-spun (not untypical of a field naturalist's practice). But instruments have various purposes; they are not just made for investigation and observation. They are also created for audiences, other scientists, their patrons, and wider publics, for which they function as symbols and metaphors defining what is proper to science (Helden & Hankins, 1994, p. 5). Dion's magnifying glass used to detect micro-organisms, is such a tool of deliberate use. Likewise, his use of the brush as an instrument lends him authority in the disciplines of science as much as in art.

In his study environment Dion was not only 'letting in the jungle' by creating an architecture of access, he was also letting in the audience as co-observers to constitute the work. His audiences in Rio often 'swamped' the installation, taking full advantage of the opportunity to pick up the hand lens and explore the specimens. Never having experienced such a level of audience interaction before, Dion found this incredibly stimulating. He had not anticipated that the audience would be so engaged and playful, almost literally breaking into the space.⁴³

The MAM archive holds an image documenting a moment of such audience interaction—which incidentally is not an image Dion selected to represent the performance part of the installation (Fig. 4.14.) It shows people milling around in front of the installation, observing the artist's doings while a boy in a butterfly shirt stands next to him, looking on. The audience asked detailed questions about the procedures which the artist discussed with them (Heidemann, 2005, p. 151).

43. Mark Dion, interview with the author, 24 October 2015.



Figure 4.14. Mark Dion *A Yard of Jungle* (1992) [Installation detail]. *Arté Amazonas* exhibition (1992). Museu de Arte Moderna, Rio de Janeiro, Brazil. Photograph: Vicente de Mello.

In this period, the early 1990s, many artists put their practice to work as social interventions, as did curators. Two such exhibitions in which environmentalist politics and audience understandings were put to the test were *Fragile Ecologies*, curated by Barbara C. Matilsky (1992) and *Culture in Action* (1993), curated by Mary Jane Jacob (Brenson, Olson, & Jacob, 1995). The latter put forward a new social agenda for sustainable participation in learning and making art. Dion himself participated in *Culture in Action* with the *Chicago Urban Ecology Action Group*. He worked with high school students to find out about the interdependency of local ecosystems, and also went on a field trip with some of these students to the tropical rainforest in Belize. Dion's purpose was to give the students a sense of scale: he intuited that the study of an extraordinarily complex ecosystem, like the rainforest, would make the temperate, urban ecosystem seem more manageable by comparison and render its characteristics more site-specific. Art critic Joe Scanlan ([1993] 2014, p. 166) commented on the Chicago project: 'The beauty of Dion's project was its indefiniteness, its constant activity and non-productiveness a parallel

for his fascination with and scepticism of scientific method. The same might be said of Dion's approach to art as social betterment'. Within the Rio installation audience members engaged with the artist for a short period of time, though not all the interactions were simply about social betterment. In the absence of other forms of evidence, other than the artist's descriptions, it remains unclear what members of the audience learnt from observing the artist, specifically in relation to his performance of the procedures of science.

Latour (1999) describes the reference system that soil scientists typically create to reconnect delocalized samples with the environment from which they are taken. Such reference systems are foundational to knowledge creation; 'to know is not simply to explore, but rather is to be able to make your way back over your own footsteps, following the path you have just marked out' (Latour, 1999, p. 74). In Dion's project presentation at the Rio museum—the de-localized forest materials that make up the table and the objects of study—there were no photographs or other documents referencing the field site(s) from which the materials were gathered, nor was there any other information about Beebe's project (Heidemann, 2005, p. 151). Indeed the only reference to Beebe was in the exhibition catalogue, which reproduced the extract on the 'yard of jungle' from his 'Jungle peace' essay.

Species identification is a key task which naturalists typically accomplish in the study or laboratory space, but that is not what the artist did in this case. He re-performed the habits and gestures associated with scientific practices of examination and identification. Yet he did so without actually carrying out these practices insofar as nothing was actually identified.⁴⁴ Through writing about his research in the tropics, Beebe had set a stage for the experience and observation of the rainforest. In turn, in *A Yard of Jungle* Dion set a stage for the practice of science in which specimens and natural materials were usually 'detached, separated, preserved, classified, and tagged . . . then reassembled, reunited, redistributed according to entirely new principles that depend on the researcher' (Latour, 1999, p. 39). If we imagine that natural science presents like a realist painting an 'exact copy of the world' to us, Dion shows

44. Mark Dion, interview with the author, 27 June 2016.

that it actually does something else entirely. Through successive stages of transformation, science as well as art links us to a transformed and constructed world (Latour, 1999, pp. 78–79). Through the re-performances of Beebe’s study methods in a sculptural tableau, Dion severed the references between specimens and locations. He thus frustrated a conventional scientific reference system in order to highlight the transformations involved in the construction of the natural world. In this process of de-naturalization and study the soil, insects, leaf mould as forest materials are transformed, then what is collected is not what it was in the forest. But the scientific researcher—or, here, the artist—is also transformed by observing and experiencing the forest. Through the displacement of the ‘yard of jungle’ onto the table, here the interface between field and exhibition space becomes a hybrid mixture of ecologist, artist, audience and the rainforest (Latour 1999, p. 39). The field finds were administered and archived, but the reference system was scrambled, rendered useless and non-functional to scientific research. Dion’s promise to perform as the explorer-naturalist-adventurer was to draw the exhibition public into the work of a naturalist and to engage them with the rainforest environment, ‘seducing the audience into giving a damn’.⁴⁵ The artist’s ambivalence towards the scientific method was expressed in the performance of a task that cannot be achieved and in which failure is its necessary companion. Dion’s skills level is always too low; he struggles with a task too enormous to be performed.⁴⁶ With this sense of failure in mind, the Amazon region cannot be contemplated as an ‘unsullied laboratory’ (Hecht & Cockburn, 1990, p. 15). The artist demonstrated the transformation of the rainforest through scientific processing, but then withdrew to make space for other voices to tell the Amazon’s story.

Silence followed the chatter and banter of the live performance. The study environment became an archive of failure and disappearance. With the desk transformed into an archive of rainforest materials and scientific instruments and the artist himself absent, it became a passive site. The animated installation turned

45. Mark Dion, interview with the author, 4 June 2015.

46. Mark Dion, interview with the author, 30 May 2015.

into a tableau of life stilled. The installation became a provisional repository of a human bureaucracy that administers, selects, deselects, presents and withholds. The arrangement of vertically stacked boxes holding anonymised natural materials started to suggest a human-made landscape environment within the exhibition space. Yet the jungle table also became emphatically literal in its use of transformed materials and pointed back to the natural environment of different scale and at the origin of this collection. The rainforest became a place that belonged to no-one, to which it was impossible to relate. The archival installation, undocumented in photographic images, invites us to speculate about the procedures that could have followed. The preserved and stored materials demand more labour, possibly a flurry of activity to trace the soil back to its original location; or to identify and classify the species contained in storage containers; a re-distribution of the materials, or the dealing with claims for ownership and repatriation to tribal land?

In *A Yard of Jungle*, as well as in works such as *On Tropical Nature* (1991), Dion reflects on the entanglements of colonialism and imperialism with scientific enquiry. In an interview with Grabner (1999) he concedes:

Rather than wagging your finger and saying “those colonial nineteenth-century naturalists were bad”, I might choose to re-enact their project to indict ourselves in the indulging of that fantasy. A fantasy that has constructed our own identity and our own sense of history and nature.
(p. 58)

These re-performed explorations are a knowing take on the culture of historic re-enactments that use the ‘original traveller as a baseline’.⁴⁷ By using elements of re-enactment that did not quite add up to an authentic scene—he looked too like the New York geek, the jungle table was too rickety—Dion created an ironic and critical distance, a foil onto which the audience could project their own imagination. However, he did not actually reference the colonial past in South America, either through images or performance.

Although there are some references in Beebe’s writing to local inhabitants in British Guiana, such as his assistant Sam or prisoners enabling transport, Dion did

47. Mark Dion, interview with the author, 4 June 2015.

not pick up on these social relations as part of Beebe's scientific context, even though the Department of Tropical Research at Kartabo, where Beebe wrote 'My jungle table', relied on British colonial infrastructure and American funding for its existence. Through his performance of a scientific process thwarted, however, he subtly indicted the fantasy of scientific exploration that went hand-in-hand with imperialism.

4.5. Conclusion

This chapter has considered Mark Dion's artwork through that what remains of it: imagery of fieldwork, catalogue texts, performance stills, installation views, exhibition archives and recollections by Dion and others. The reconstruction of the work after more than 20 years has necessarily constructed the work anew and differently. On the one hand, the above account has brought together elements of the making of the work that were not all visible in the exhibition; on the other hand, re-reading the work through its documentary materials necessarily makes for a different experience of the work than actually witnessing it in the exhibition space. I have shown how scientific and artistic knowledge and practice has interlocked with observational practice in nature study, across disciplinary boundaries and moments in time (Crary, 1990, p. 9). In *A Yard of Jungle*, we observe Mark Dion observing William Beebe observing the environment. As observer, Beebe was embedded in a system of conventions and limitations. He was an effect of an irreducibly heterogeneous system of discursive, social, technological, and institutional relations—as much as Dion was within the exhibitionary context of 1992.

Both Beebe and Dion relied on specific infrastructures in making their works. Beebe's popular writing created a metropolitan audience for his works in the tropics. It translated an ecologist's first-hand experience into writing and into the environs of the Zoological Garden. Through Beebe's work and writing, the zoo's theatre of nature and ecological research are intertwined: the study of life histories of interdependent species within an ecosystem, the collection of animals for the New York Zoological Garden and the writing of nature's spectacle in the field and in the field station.

Dion's overriding aim in making his work for the Rio summit was to distribute knowledge and information about the natural environment and to engage audiences so that they would take an interest in environmental issues. His techniques involved dialogues with the audience during his performance, focusing on scientific practices. Both Beebe and Dion in their different ways created spectacles of nature's colours, textures and smells as well as of the expertise and instruments used to motivate their respective audiences to care. But much of the pedagogic work was left to those who collaborated and commissioned Dion's art. The labour of the curators and the political environment of the Rio Earth Summit contributed to readings of the work while it was situated within an exhibition project context. Meanwhile the artist could afford to slip into stereotyping his chosen historic protagonist, moving into and out of authenticity while re-performing scientific and archiving practices.

Working at the intersection between natural science, social science and artistic practices, Dion's investigations of tropical habitat under threat take on new significance within the context of contemporary debates over the Anthropocene. A key concern here is to ask how change becomes known to us. Dion shows knowledge of change by bringing fragments of the rainforest into public view. He makes an environment palpable and raises curiosity by focusing on soil strata and the rich biodiversity within. However, his evocation of the experience of discovery of splendid life forms gave way in a matter of days to a sense of loss. Dion's work in the space of the exhibition re-performed a tangibly short interval between knowing something and losing it. In his time, Beebe's own presence in tropical South America had been enabled by dramatic changes in land use, notably the development of rubber plantations; and a new round of global environmental transformation, including deforestation, provide context for the *Arté Amazonas* exhibition and Dion's making of *A Yard of Jungle*.

5. Chrystel Lebas: re-visiting the Sir Edward James Salisbury archive (ca. 1905–1938)

5.1. Introduction



Figure 5.1. Silver gelatin print from E. J. Salisbury glass plate by Chrystel Lebas, image size 246 x 327 mm. [Edward James Salisbury. (ca. 1905–1938). *Pinus sylvestris* [illeg]. Salisbury Collection (Box 1, Slide Box Aviemore 1237–1249, Plate No. 1245, BM 001162005). British and Irish Herbarium, Natural History Museum, London].



Figure 5.2. Chrystel Lebas. *Re-visiting Pinus sylvestris* [illeg.] Plate n°1245. Aviemore, Rothiemurchus, October 2011. 57°8.713' N 3°50.290' W [Photograph. Work in progress, 390 x 490 mm]. Images for discussion with Chrystel Lebas, Kath Castillo and Mark Spencer on 17 December 2014 at Natural History Museum, London. Photograph by Bergit Arends (2014).

Aesthetically [referring to Fig. 5.2.], it is gorgeous . . . you also see, really clearly, if you put that [referring to Figure 5.1.] next to it, . . . it tells you that story I first told you, old tree now from an older type of landscape management and history, being encroached by a cohort of new trees; and actually in the long run it'll probably die, because it'll be outcompeted. I just really like it.⁴⁸

In the British and Irish Herbarium at the Natural History Museum in London sometime in 2011 botanist Mark Spencer and artist Chrystel Lebas looked together at Lebas' photograph of the Scots pine trees (Fig. 5.2.). While looking at her image they both had—as expressed by Spencer—an 'epiphany': their realization of a mutual, enthusiastic and respectful opening up of disciplinary outlooks onto the world through landscape photography. The story Spencer then told, spurred on by Lebas' photograph, is the story of the Scots pines (*Pinus sylvestris*). The landscape

48. Mark Spencer, interview with the author, 17 December 2014.

photograph frames the mature Scots pine in the centre of the image, surrounded by younger, less mature trees. These trees are growing within an increasingly crowded environment and are competing for light and space. The wide-spreading branches of the mature pine indicate that this tree once stood alone in a more open landscape—as seen in the image by Salisbury (Fig. 5.1.), whereas the narrow, upright growth of the surrounding younger trees shows that they all grew tall at the same time, reaching for the sunlight above. The differences in tree shapes reveal a temporal heterogeneity through the individual trees' life cycles, caused primarily by changing environmental light conditions. Lebas, on the other hand, was intrigued by the tree formation, which she observed from the changing perspective of a passing walker in the landscape. Her response to the landscape and its inhabitant plants was part of a subjective and personal quest, the relation to Salisbury's image seemingly coincidental.

In a later reflection on her photographic method, Lebas stated: 'I did not have any expectations . . . when I started . . . walking the landscape on my own, I did not know what I was looking *for* . . . I didn't know what I was looking *at* . . . so I would just photograph [emphases added]'.⁴⁹ Lebas opened herself to the experience of being within the community of trees, the forest. This experience was subsequently re-lived and reflected upon through Spencer's interpretation of visual information within the image, but also visually through Lebas herself—as in the above discussion, which took place between the botanist and the artist in 2014. Lebas started pairing up Salisbury's images with her own, as in the pairing of images above, before and after experiencing the environment herself. Lebas' associations made between her own and Salisbury's images were visually driven. In discussion, while looking at the historic and contemporary images, it became obvious to the artist and botanist that photography could become a comparative tool, in both art and science, for documenting environmental changes in the landscape (Spencer, 2017). But Lebas also became emotionally invested in following Salisbury as a person. Spencer also reflected on looking at this image: 'It's about you and him, that image is you and him'.⁵⁰

49. Chrystel Lebas, interview with the author, 24 November 2014.

50. Mark Spencer, interview with the author, 17 December 2014.

Here, in what follows, I discuss examples of images from Scotland at Rothiemurchus, the location of the images of the Scots pines, and Culbin Sands on the North-East coast. There are two related questions as to the observation of environmental change in this collaborative project. How is change recognized within the environment by the artist and by the scientist? And what do observed differences actually imply, particularly as most environments are 'ordinarily dynamic' (Spencer, 2015)? As introduced in Chapter 1, Lebas' project builds on an archive of historic photographic glass negatives left by ecologist Sir Edward James Salisbury (1886–1978), who made the images in the first third of the twentieth century for private and professional purposes. This archive is now housed in the British and Irish Herbarium at the Natural History Museum in London, where Spencer re-discovered the glass-plate negatives and contact prints around 2008. Salisbury's notebooks, recordings of experiments and copies of his scientific pamphlets, are held at the Royal Botanic Gardens, Kew in London, where he was Director from 1943 to 1956. The above conversation took place quite early on in the project and started to consolidate the project methodology. The project subsequently became entitled *The Sir Edward James Salisbury archive re-visited: observing environmental change in British landscape* (2011 onwards).

As curator of contemporary art at the Natural History Museum at the time, I introduced Lebas to Spencer in the expectation that a possible collaboration might be fruitful on an intellectual and personal level. My close involvement with the project meant that I had access to the collaborative team and the archive collection from the outset. I became an occasional participant in the fieldwork and research, which helped me gain better insights into the developing collaboration throughout the life of the project.

To develop the analysis in this chapter I first provide contextual information on Lebas' and Salisbury's working practices and the genesis of the project (section 5.1.). I then introduce the project's methodology, discussing the multi-disciplinary practices of looking for environmental change as presented in the pairing of contemporary photographs by Lebas and the historic photographs by Salisbury (section 5.2.). Here I propose the term 'visual framework' to describe the core methodological approach, i.e. a comparative visual analysis of historic images and

their contemporary, locational equivalent. This is not purely a visual analysis, but also relies upon observations made in the course of fieldwork in the landscapes themselves as well as other textual sources. Study of the photographic images themselves was accompanied by work on other archives, indeed a larger field of visibility (Mitchell, 2002, p. 178), and extended further to encompass other aspects in the experience of a somatic environment. The ecological photographs required a re-contextualization within the environment to more fully understand their content.

Due to the wide geographical scope of the Salisbury archive, specific sites were selected for intensive field-based study in Scotland and Blakeney, Norfolk, the latter because of the place's association with early ecological history (Oliver, 1913). In the following section, I trace who sees what in the landscape itself and in the images of the landscape, whether from an ecological, botanical or artistic perspective (section 5.3.). I then describe the experience of walking and seeing within the landscape, using the example of the Culbin Sands dune landscape (section 5.4.). I conclude the chapter by returning to the more general questions asked above.

Chrystel Lebas is a contemporary art photographer and film-maker. Both her chosen artistic media capture light and time to create images of mimetic relationship and resemblance to the world. Her subject is the study of landscapes and the traces within them left by human activities or natural forces. The environments she chooses tend to be forests. Her methods are the walking journey, usually in solitude, and the extended exposure of the photographic negative film to the evening light of overcast skies. Her work typically shows the European landscape under different atmospheric conditions as day turns slowly into night. To date the rationale behind Lebas' photographic work has not been informed by a close engagement with scientific research, though she typically undertakes longitudinal and repeat observations of environments during different seasons. In the field she uses photographic and film technologies to observe often fleeting phenomena, such as fog or the light of stars. She often makes use of the panoramic format to expand her field of vision. Through photography and within the landscape, she seeks a contemporary sense of the sublime, evoking fear and terror in its 'greatness of dimension' (Burke, [1759] 2008, p. 66). To render the sublime, Burke suggests the use of 'sad and fuscous colours' (p. 75)—as found in Lebas'

photographs—and ‘darkness [which] is more productive of sublime ideas than light’ (p. 63).

Lebas uses colour analogue photography and moving images in her artistic practice to trace ways in which the forces of the wind and the sea interconnect with humans, animals and plants. Lebas (b. 1966) grew up first in the south of France with its mistral winds and the deep dry scent of pine trees and later in Paris (Lebas, 2017, p. 6). She moved to London in 1994 and studied photography at the Royal College of Art from 1995 to 1997. The series of works she developed there explored the camera as dispassionate observer and its capacity to capture light and time through extended exposures. Early examples are *Sleep* (1997), *Night* (1996–1998), and later the series *Between Dog and Wolf* (2004–2005), through which she explored her childhood memories. In her project *Études Bel-Val* (2008–2009) on the eponymous hunting estate in the Ardennes, which is affiliated to the Musée de la Chasse et de la Nature [The Museum of Hunting and Nature] in Paris, Lebas recorded seasonal changes of the landscape. She selected a specific view overlooking an artificial lake in the enclosed park since she was not allowed to roam freely in the park for her own security. She might have encountered potentially dangerous other animals such as boars and bears. From this static human vantage point she then recorded the natural, yet managed landscape during different seasons, revealing the slow changes within the vegetation.

When I approached her on behalf of the Natural History Museum with the invitation to work on the Salisbury project, Lebas had been working in Croatia over a period of three years. Her extended sojourns in a ranger’s lodge in the Risnjak National Park resulted in *Presence* (2008–2010), a photographic series on animals studied through the traces they left in the environment, and the one-hour film *Tracking Nature – Dedin – Risnjak* (2009). The latter work is a real-time survey with a 360 degree circular movement of the visual and sound environs of the Green Bridge, a high passage over the A6 Rijeka to Zagreb motorway linking the two forest parks. The film was exhibited with a contrasting series of photographs of dioramas, *Nature Morte – Scenette* (2008–2010) at the Hunting Museum in Zagreb. These previous projects contributed to Lebas’ interest in working with a historic environmental archive—a novel approach for the artist. The Salisbury project,

however, took her not just into the forest, but also to the dynamic shores of the East and West coasts of Scotland.

Comparatively little has been written about the botanist Edward James Salisbury (1886–1978). Discussions of ecological paradigms in Great Britain and the USA generally focus on his better-known contemporaries, notably Arthur G. Tansley (1871–1955) (Ayres, 2012; Cameron, 1999)—as already discussed in Chapter 2—and American botanist Frederic Clements (1874–1945) (Hagen, 1992; Worster, 1994). Both were early pioneers of ecological science and their works preceded Salisbury's by about a decade. However, during his lifetime 'Salisbury was one of the best known British botanists of his generation' (Clapham, 1980, p. 537). His Royal Society biographer Clapham (1980) describes Salisbury's contributions in botany as significant to the fields of ecology, reproductive biology and the scientific study of weeds, notably the ecological work *Weeds and aliens* (1961). Likewise, ecologist Peter Grubb (2013), commenting on Salisbury's 1929 key paper 'The biological equipment of species in relation to competition', underlines his 'pioneering collection of "vital statistics of plants"', which culminated in the highly influential book *Reproductive capacity of plants* (Salisbury, 1942). Salisbury was particularly interested in seed propagation and dispersal, noting that 'of all the biological features that influence frequency, capacity for propagation and dispersal must obviously be of prime consequence' (1929, p. 207); thus, many "'plants grow not where they would but where they must'".⁵¹ These research interests are reflected in the range of photographs of plant vegetation in the British Isles Salisbury took.

Salisbury's recording project began during his formative studies as botanist and ecologist between 1905 and 1908 when his tutor F.W. Oliver invited him to take part in an advanced excursion to the Bouche d'Erquy in Brittany (France), where they examined coastal vegetation. Oliver was impressed by Salisbury's interest and knowledge of plants in the field (Clapham, 1980, pp. 504–505). This interest finds its overwhelming expression in the plant records, gathered over decades by Salisbury

51. Salisbury also showed that plants could compete with another by making more seeds of a given size, more dispersible seeds, seeds that last longer, seeds that are better defended against disease and/or granivores, larger seeds, or seeds that germinate at a more favourable time for survival of seedlings.

while walking the landscape. Most of the images in his collection were taken between 1912 and 1921, but the earliest dated photograph is from 5 April 1905 and the latest recorded date is 22 April 1938. His early ecological work was initially on coastal vegetation, where he continued Oliver's pioneering research, later authoring the ecological work *Downs and dunes* (1952). Having been closely involved in the work of various local natural history societies, Salisbury was a founding member of the British Ecological Society in 1913 and later served as its President (1928–1929). He wrote popular science books, including *The living garden* (1935) and *Flowers of the woods* (1946). In his professional career, he thus combined the roles of researcher, field ecologist, administrator and educator. In a 1955 lecture, he proposed that every mode of study in science and education is 'but a different window through which we look upon the world around us and from which we see it at a different angle' (Salisbury, 1955).

Together Lebas and Spencer began to trace the origins of the Salisbury photographic collection and got to know the individual photographs. Once independent funding was in place,⁵² they were joined by field botanist Kath Castillo. Spencer, Senior Curator of the British and Irish Herbarium at the Natural History Museum from 2004 to summer 2016, has a curatorial and research interest in environmental change and its impact upon the life cycle events of the flora in the UK, as well as interests in forensics and historic botany. His initial focus on this archive project reflected his interest in environmental change, but he also considered it an experiment in museum collections management. Spencer wanted to test how a relatively small collection of photographic images could be integrated into the museum's data-management system in the herbarium, as a model with potential applications across the museum.⁵³ Kath Castillo is a botanist and field scientist, who was especially employed for this project. As research assistant she worked closely with Lebas, studying the archive images and accompanying her on

52. The Calouste Gulbenkian Foundation, UK branch, funded this project as part of its support of the contemporary art programme at the Natural History Museum. Through the grant period between autumn 2013 and December 2014 Lebas and Castillo were both paid honoraria to research the Salisbury archive collection. I was paid a curatorial fee to work with the team and to seek external opportunities to publicize and potentially exhibit the project outcomes.

53. Mark Spencer, interviews with the author, 17 December 2014 and 15 May 2015.

field trips to Scotland and Blakeney. Her main job was to accession, document and house the collection within the museum's herbarium and to enter the records for every single image into the museum's database. During fieldwork her specific tasks were to search for the original locations, to identify plant species depicted in the photographs and to establish a floristic dataset for each locality. This process and the creation of research data, in particular the identification of plants on the images, was undertaken in discussion with and instructed by Spencer. Whereas Salisbury was engaged in inventing the emerging field of ecological science, the contemporary scientists, by their own reflection, do not consider themselves ecologists. Their expertise was, however, contributory to this project as a qualitative ecological study. Moreover, they expanded the area of botanical curation and photographic conservation in the herbarium at the Natural History Museum.

Out of their initial research, as well as Lebas' intuitive response to walking by herself through the environments represented in the images, the collaborators started to explore the archive towards a comparative environmental study. In the early stages of the project, Lebas had hoped to find clues about the genealogy and rationale for the formation of the archive: how Salisbury travelled, the selection of locations, the photographic equipment used, the time frame of the archive, or indeed, if there might be other archives not yet found. Research into the archives at the Royal Botanic Gardens, Kew, gave some insights into Salisbury's ecological research working processes. But disappointingly, these papers did not contain any information about the making of the photographic archive at the Natural History Museum. In the absence of this kind of direct contextual information and an explanation for the archive's structure, the artist worked on Salisbury's photographic objects themselves. She traced images to his publications and compared them to photographs by his collaborators and to other photographs used in the emerging science of ecology. The material photographic objects—their fragility, the scratched layer of silver gelatine on glass, on which every smudge and finger print could tell a story—became sources of inspiration, and objects in need of preservation. With little other information to be found about the photographic archive, Lebas had to experience the landscape itself to come closer to what

Salisbury wanted to achieve and how. Thus, the historic image objects, the journeys to re-visit the sites within the image and the comparison between moments in time through Lebas' own photographic images became the heart of the project. These activities, whether taking place within the herbarium, within the landscape or later on within the space of an exhibition, are re-performances of the archive. And Lebas' recreation of individual photographic images in the space of her darkroom, for the purposes of fieldwork or exhibition, is also a re-performance.

In this study the focus is on the artist's engagement with the Salisbury archive and what it reveals about an early ecological construction of the natural environment. The artist's project, I argue, is a hybrid between 'what lies "out there"' (Ingold, 1993, p. 154), created through a scientific study of the environment in which the separation between 'man' and 'nature' is questioned, and the artist's own subjective engagement with the landscape, which in Ingold's terms 'is *with*' her, as much as she is with the landscape. I use the term 'landscape' here to reflect the disciplinary practices and subjective views which Lebas and her collaborators themselves adopt.

5.2. Evolving a visual framework

This chapter is concerned with a three-way observational study of the environment. The environment is looked at by three different types of observer: an historic botanist-ecologist (Salisbury) working a century ago, two contemporary botanists (Castillo, Spencer) and a contemporary artist (Lebas). Their perspectives make this project multi-disciplinary, yet in the process of working together it becomes 'indisciplined and interdisciplinary' (Schaffer, 2009). The 'indisciplined' is not just reflected in the processes of looking, but within the site of Lebas' photographic images themselves as she started to integrate scientific images and texts into her images.

Art historian Jonathan Crary (1990, pp. 5–6) describes the observing human subject and its vision as both a 'historical product *and* the site of certain practices, techniques, institutions and procedures of subjectification'. The observer, specific to his/her time is also an '*effect* of an irreducibly heterogeneous system of discursive, social, technological, and institutional relations' [emphases in original].

Within the subject of the observer, vision and the effects of this system of relations are always inseparable. This study approaches the observing human subject as bound into such complex systems of relations in which acts of seeing and the conditions of making works take place (Mitman & Wilder, 2016). However, the observing subject is not just the effect of such a heterogeneous system. The observer-subject also produces new or different ways of seeing and relations out of such a system. In what follows I first describe processes of seeing within the landscape, followed by ways of looking as informed by disciplinary expertise.

The collaborators in this project used two types of visual analysis: firstly, plant species analysis, image by image; and secondly, the contextualization of the archival image through knowledge of the environment depicted. Walking the landscape and looking at the landscape is in principle a process of seeing, whereas framing the landscape through the view in the photograph while walking became a process of 'seeing as'. To distinguish these processes more precisely: *seeing* is understood here as a direct, non-mediated perception of the landscape environment, a perception that is not cognitively processed. Bodily movement—like Lebas' walking—is a vital part of this visual perception. Seeing here takes place within an environment, in which Lebas moves in relation to the horizon and in which background and objects within the environment become means of orientation. As observer within the environment, the observers, here Lebas and Castillo, perceive directly while moving through an environment. Psychologist J. J. Gibson (1979) considers this theoretical approach to visual perception to be 'ecological'. Perceiving the environment is 'keeping-in-touch with the world, an experiencing of things rather than a having of experiences' (p. 239) and involves 'getting information from the ambient array of light . . . that involves the exploratory activity of looking around, getting around, and looking at things' (p. 147). By contrast, *seeing as* is a cognitively mediated perception, which needs prior knowledge and mental pictures. When Lebas first walks the landscape environment, she *sees* and, in the course of the project increasingly *sees as*. In her method of walking the landscape, particularly towards the evening and at night when she perceives less and less visually, she allows herself a somatic experience of the landscape. The processes of *seeing as* began to emerge when Lebas walked the landscape together with the botanist and in

communicating and sharing each other's knowledge. Together they then sought out specific landscape views and specific plants relating to images from the Salisbury archive—studied prior to and during their moving through the landscape environment. The landscape became cognitively mediated. In using the term 'seeing as', I seek to describe a process of looking at the landscape in comparison with the historic image. The results of both activities, seeing as and walking, were then complemented by textual and image materials, collated by the artist in collaboration with the botanists. The process of compiling different materials about the landscape and about individual plants species within the landscape is here understood as a type of montage, in which image and text are complementary and comment upon each other.

With the principles of comparative analysis established, the collaborators needed to work on a joint understanding of how knowledge about environmental change could emerge both from the herbarium and within the field. I describe this consensus as the 'visual framework'. The visual framework is constructed to observe environmental change through visual analyses (whether seeing or seeing as), types of looking which are informed by the respective disciplines, and which are guided by the spaces in which looking takes place. The environment was experienced both as a single observer and together as multiple observers.

There are different ways of looking at plants and vegetation. In the herbarium, which is essentially a plant library, the plant is abstracted from the field, flattened, dried and mounted onto a sheet of paper of a pre-determined size to fit the herbarium store cupboard. Botanists within natural history museums tend to adopt an evolutionary perspective when looking at plant materials within the herbarium. Forensic botanists work within the field. The forensic perspective examines how the plant is structurally integrated in the environment by studying the spread and shape of plants. From this plant data relations between time and space within the landscape can be made. By comparison a gardener would adopt an aesthetic perspective when looking at plants. The artist-photographer can adopt a variety of aesthetic perspectives of single plants: architectural-sculptural as in the works of Karl Blossfeldt (1865–1932), erotic as in the photographs by Robert Mapplethorpe (1946–1989), scientific-investigative as in the blue cyanotypes by Anna Atkins

(1799–1871), hand-coloured Japanese plants by Kazumasa Ogawa (1860–1929), or the early outdoor tree studies on salt paper by Scottish photographer David Octavius Hill (1802–1870), to name but a few well-known photographers and relevant examples. Together the collaborators looked at landscape morphology, vegetation structures and searched for specific plants, both within the archive images and within the landscape itself. They engaged in ‘specialized, diagnostic looking’ at the images of and within the environment towards an ‘enskillment of vision’ (Bleichmar, 2012, p. 87) through the mobilization of images, bodily movement and individual disciplinary expertise.

The process of learning to look happened through individual and collaborative study. The spaces for enskillment were those of the herbarium, the photographic darkroom, the artist’s studio and the landscape. The sharing and combining of expertise was dominated by scientific looking since the archive is situated within a natural history museum. While this space was the point of departure, the processes of observation were also influenced by artistic ways of looking. Shaping the visual framework was an iterative process, its calibration based on a progressive enskillment by the project participants and intersecting artistic and scientific visual practices. The framework served to guide the selection of single images from a collection of more than 1,400 gelatin dry plate negatives, about 108 x 82 mm in format and about 2 mm in thickness, weighing slightly in the hand. The negatives were stored in 144 Kodak boxes, some with contact prints. Transported by Salisbury’s historic photographs over 100 years later Chrystel Lebas adopted a mode of travel inspired by his. Her subject became—just like Salisbury’s—the study of environments and their inhabitant plants seen through the lens of a camera.

Lebas took the image described in the introduction at the early stage of the project, when she did not know what she was looking *for*, nor looking *at*. She photographed the scene while walking on the Rothiemurchus Estate in Scotland, which once would have been the centre of the wide-spread Caledonian pine forest. The estate is ‘one of the largest surviving areas of ancient woodland in Europe where the average age of the Scots pines exceeds 100 years with some more than 300 years old’, (Lebas, 2017, p. 48). According to the estate’s website, the forest is ‘a living icon, a history book and a collage of mystery and emotion’. It ‘now covers

an area of about 30 square kilometres and is believed to comprise over 10 million trees . . . These iconic Pines frame every view' ('Rothiemurchus history', n. d.). Lebas' photograph was inspired by the image on Salisbury's glass negative, labelled simply *Pinus silvestris*, 'so it could be anywhere in Rothiemurchus, because there are so many pines'. She chose the place intuitively, but later artist and botanists read the group of trees structurally in the way the tree was framed and, in standing forward, looked 'more important'.⁵⁴ Lebas became interested in the history of the tree in the centre of her image and the surrounding formation of trees, in a 'landscape [that is] huge and difficult to walk through'.⁵⁵ For comparison she experimented with image formats and took this view in a panoramic format as well, but it was a bit 'blurred in the background'. Everybody preferred the more condensed format, which Lebas proposed to print around 1.60 m squared, 'like a kind of monument'.⁵⁶ Lebas framed her view of the landscape through her memory of Salisbury's images and its scant description—it might have been the one in Figure 5.1., but the artist is not sure—as well as in relation to her own physical experience of the landscape and her own subjective interest. She chose to 're-visit' (the artist's preferred term) the place and marked it by its GPS (Global Positioning Data). But the location of the two images is not identical, it is rather a locational interpretation by the artist. The re-visiting here became a dialogue of sorts with Salisbury and his view of the landscape within a broad geographical area, a type of habitat and its characteristic and ubiquitous pine trees.

Historically, from the seventeenth century onwards, the space of the natural history museum became a space of knowledge designed to systematize objects from the natural world (Outram, 1996). Since then knowledge systems have become co-existing and complementary, as with the Linnean binomial, phylogeny and molecular genetics. Latour (1987, p. 230) analyses the institution of the natural history museum as a 'centre of calculation'. The museum, the 'centre', exists within an extended network and sets agendas, through which it can 'act at a distance on unfamiliar events, places and people'. The centre mandates and oversees the

54. Kath Castillo, Chrystel Lebas and Mark Spencer, group interview with the author, 17 December 2014.

55. Chrystel Lebas, interview with the author, 24 November 2014.

56. Chrystel Lebas, interview with the author, 17 December 2014.

creation of units of data, such as botanical specimens. The specimen is rendered 'mobile', so that it can be brought back; it is kept 'stable' so it can be moved without distortion, corruption or decay; and it is 'combinable', so that it can be accumulated, aggregated and recombined. From its inception, the centre required the labour of ordering as well as new skills in observation and visual comparative literacy for shape and pattern recognition (Bleichmar, 2011). The 'eyes and hands of so many far-flung travellers, artists, and botanists' (Daston & Lunbeck, 2007, p. 369) needed to be calibrated and co-ordinated to work across geographical distances and to serve the natural history museum as the centre. In the systematizing sciences, objects from the natural world are collected, decontextualized and placed in new contexts. These contexts are typically botanic gardens and natural history museums, which hold botanical, zoological, geological and paleontological collections (Kohler, 2002; Kuklick & Kohler, 1996; Outram, 1996). The herbarium within the system of natural history study is a research space for prepared botanical objects, namely plants with their seeds. Ecological science builds on the taxonomic system. The study of ecology is concerned with interrelations of species within a given habitat, with the recognition of the morphology of the single species part of the analytics of a habitat. The visual data of the ecological image requires new skills for reading the plants within their habitat: the habitat is characterized first, for example woodland, and the various taxonomic units (taxa), say *Pinus sylvestris* as one taxon, are identified through botanical visual skills.⁵⁷ Ecological photographs are therefore a difficult fit within the herbarium format, because the images show groups of different plants, not just one isolated species as in the herbarium sheet.

A fully-fledged visual history of ecological practice and its use of photography has yet to be written. Photographic materials from the formative period in the making of modern ecology provide a useful resource for the study of disciplinary practice in this field in two respects. Firstly, they prompt questions about the epistemic functions of photography in the emerging science of ecology. Secondly, these photographs may acquire new epistemic functions through the re-activation of the data they contain, in this context data relating to flora in particular locations.

57. Mark Spencer, interview with the author, 15 May 2015.

Between the images' functions within the epistemological processes of the evolving science of ecology—as I will show below in an analysis of a sequence of Salisbury's images—and the re-activation of the images through the work of Lebas and her collaborators, the historic, archival photographs had become redundant objects. The Salisbury archive is currently typical of photographic collections held in natural history museums. Photography within science is used as evidence in the epistemological process and tends to become redundant when displaced by newer technologies and different scientific concepts. Though clearly the scientific photograph can also acquire iconic status, once the epistemological process is concluded.⁵⁸

In their recent history of photographic collections *Photographs, museums, collections: between art and information*, Edwards and Morton (2015, p. 8) describe the 'historical circumstance of marginality and low or confused status' of such collections like Salisbury's archive.⁵⁹ The authors note the 'little understanding in most museums of how photographs were acquired, when or why', impacting on how the histories of such collections are written. The 'posthumous fortune', of Salisbury's archive of images, including its new purpose and lease of life as part of Lebas' project, needs to be framed against its perceived redundancy, its private amateur quality and its consequential low status.

Salisbury's photographic collection provided a key source of illustrations for his publications, just as his contemporaries used their own photographs. Tansley, for example, also made and collected photographs and selected them for publications such as *The British islands and their vegetation* (1939). The so-called Tansley collection, held at the British Ecological Society, also contains photographs of the First International Phytogeographical Excursion of 1911, taken by Clements, Cowles, Massart and Rubel, along with other excursion photographs taken by international

58. This is the case for *Photo 51*, an X-ray diffraction image taken in 1952 by Rosalind Franklin and Raymond Gosling, which helped to later determine the double-helix structure of DNA.

59. Two cardboard boxes with prints and negatives assembled by A. G. Tansley, were transferred by Mrs Tansley to the Conservancy's headquarters in London probably in 1972. At some point the boxes were passed to the British Ecological Society (BES), where John Sheail and Chris Preston started to catalogue the contents in 2004. The materials were then kept in 'fireproof filing cabinets in the Biological Records Centre'. Chrystel Lebas and I looked at the collection together in the offices of the BES in London (Sheail, 2004, pp. 2–3).

photographers and fellow ecologists. As with Salisbury's collection, these images give insights into the condition of vegetation of a wide range of localities and times. In these photographs, comparisons between the historic and present-day vegetation could also be made (Sheail, 2004). No images by Salisbury's are included in the Tansley collection, possibly because Salisbury did not take part in the Phytogeographical Excursions.

By the scientific standards of his time, Salisbury's photography could have been more technically and aesthetically sophisticated. He used heavy glass negative plates for his field-camera,⁶⁰ and some of his glass negatives were quite old when he used them, resulting in surface degradation. While the panoramic camera with a soft-gelatine negative was already in use by contemporaneous ecologist Oliver, Salisbury stayed with heavy field camera equipment. Carrying such a camera and heavy glass negatives would have impacted on the distance and the terrain he walked. Lebas evaluates Salisbury's aesthetic as clearly not attaching 'importance to the pure photographic image'. In contrast, she suggests, Oliver 'was definitely looking for an aesthetic . . . more photographic as an image. More precise'.⁶¹

Ecological photography presents an epistemological shift from botanical systematics and the herbarium sheet as its foundational unit. However, this shift is complementary to a taxonomic and ecological knowledge system, as Salisbury describes in 'Ecological aspects of plant taxonomy' (1940):

The ecologist is concerned with the study of the causal relations respecting the presence of particular species in particular places. Any such study presupposes an exact knowledge of the precise nature of the systematic aggregates that are involved, otherwise there is inevitable obscurity and confusion of issues. The ecologist is thus dependent upon the taxonomist for the discrimination, from the morphological point of view, of the material with which he deals. (p. 239)

This disciplinary approach is relevant to the interpretation of Salisbury's photographs within the project in either taxonomic or ecological terms. As

60. Lebas never found the camera Salisbury used, nor any technical reference to it, but assumes the use of a standard field camera with gelatine dry plate negatives from the early twentieth century.

61. Chrystel Lebas, interview with the author, 24 November 2014.

discussed in Chapter 1, ecological studies examine relations between living organisms dwelling closely to each other within the same space, as well as the chemical interactions of organic and inorganic compounds within a system. Ecological photography is used primarily to show the interrelations between a species and its environment, while the herbarium sheet shows the morphology of a single species, as required for the taxonomic approach. As Salisbury suggests above, the taxonomic approach does complement the ecological photograph. Ecological studies therefore rely as much on surveying a field terrain with a trained eye as on analytical skills within a herbarium or laboratory set-up, in which species are de-contextualized. The visual culture of ecological practice reflects both aspects. The trained eye is needed to select a representative area within a terrain in order to take an information-rich photograph such as those which served as illustration to Salisbury's scientific papers. However, Salisbury also focussed on single plants, either within the field, by separating the plant within the habitat or by isolating the plant within experimental settings, as in the study of plant roots in Salisbury's image (Fig. 5.3.).

The early ecologist's tools for descriptions of the interrelationships between species within an environment are photographic, diagrammatic, quantitative and textual. For example, in 'The biological equipment of species in relation to competition', Salisbury discusses the 'vital statistics of plants', namely the 'biological features that influence frequency, capacity for propagation and dispersal' of a plant species (1929, p. 207); and how these are influenced by environmental factors, such as light and soil condition (texture, water content, constitution of the soil atmosphere). Complementary visual images and verbal explanations are given below for the plant *Rumex acetosa*, (Common sorrel), a herbaceous plant native to the British Isles, which can be found in grassland, coastal dunes and cliffs, and which grows to a height of about 1 metre ('*Rumex acetosa*', n. d.). *Rumex acetosella* (Sheep's sorrel) is often found on disturbed areas.

In Salisbury's archive three types of image can be distinguished: images of landscapes photographed from his observer-perspective within the environment; close-ups of plants or a vegetation community photographed within the field seen from above by Salisbury leaning forward to take the photograph; and images in

which whole plants, including their roots, are isolated against a background such as a piece of paper (Figs 5.4. and 5.7.) Salisbury calls images of single plants ‘plant portraits’ (Fig. 5.3.). This type of composition harks back to a longer tradition of photographing species against an introduced background for emphasis and isolating an organism within an environment. It relates to the laboratory setting or indeed the herbarium sheet, because its purpose is to look at single species.



Figure 5.3. Silver gelatin print from E. J. Salisbury glass plate by Chrystel Lebas, image size 246 x 327 mm. [Edward James Salisbury. (ca. 1905–1938). *Juncus tenuis* & *Juncus bufonius*. Salisbury Collection (Box 1 Arrochar 1928, 1070–1079, Plate No. 1073, BM001081976). British and Irish Herbarium, Natural History Museum, London].



Figure 5.4. Silver gelatin print from E. J. Salisbury glass plate by Chrystel Lebas, image size 246 x 327 mm. [Edward James Salisbury. (ca. 1905–1938). *Quercus robur* Woods, *Lonicera* trunk. Salisbury Collection (Box 3 *Quercus robur* Woods, I-1028–1041, Plate No. 1037, BM001162261). British and Irish Herbarium, Natural History Museum, London].

The image shows the root of a *Lonicera periclymenum* (common name: Honeysuckle) in a pedunculate oak wood. The root is visually framed by a white piece of paper, held by an unnamed man, probably F. W. Oliver.

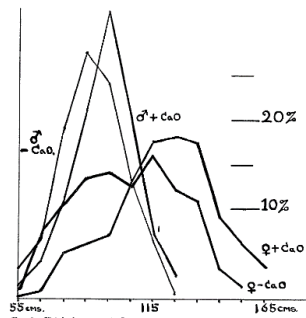


Figure 5.5. 'Height frequency in *Rumex acetosa* (calculated from the data furnished by Sprecher). Ordinates = % of individuals. Abscissae = height'. (p. 200).



Figure 5.6. 'Early stage in colonization of a burnt heath showing dominance of *Rumex acetosella*. Three tussocks of *Holcus lanatus*, which have not yet become stoloniferous, are seen on the right and three sprouting stools of *Ulex* on the left'. (Plate XIV, face p. 204). [Figure 5.6. included in Salisbury Collection, Box 1, Heaths VI, 1318–1326, Plate No. 1319, BM001081744, British and Irish Herbarium, Natural History Museum, London].

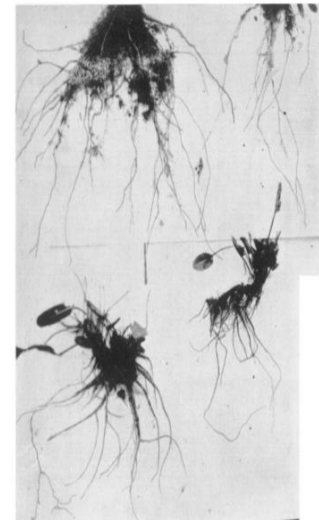


Figure 5.7. '*Rumex acetosa*. The two plants above without competition, the two below subject to grass competition'. (Plate XV, face p. 206).

Figures 5.5.–5.7. From 'Biological equipment of species in relation to competition', by E. J. Salisbury, 1929, *Journal of Ecology*, XVII (2), pp. 197–222. [Figs 5.5. and 5.7. Screen shots].

The plant portrait can therefore be described as taxonomically orientated. In Salisbury's case the 'plant portraits' are to study the plants' interrelations with environmental factors within a laboratory environment. The term 'portrait', which typically refers to depicting the head and facial features of a single human, also anthropomorphizes the plant species for the human observer. The function of each Salisbury image is typically descriptive and illustrative, be it a photograph of a habitat, a close-up plant portrait, or a composition of parts of a plant within an

experimental setting (as in Fig. 5.7.). To grasp the photograph's intention within the framework of ecology, the image needs to be read in conjunction with data visualization (for example as in Fig. 5.5.) and/or a text detailing geographical location or habitat information and pointing to the key interest.

There are few images of human presence in Salisbury's images. Does the incidental shoe on the edge of the photographic frame point at a plant or perhaps indicate scale—or did the foot slip into the photographic frame by accident (Fig. 5.8.)? Another photograph shows a woman in Edwardian dress standing afar among trees (Fig. 5.9.). Do these images act to separate humans from vegetation, to divide culture from nature (Cameron & Matless, 2011, p. 31)?



Figure 5.8. Silver gelatin print from E. J. Salisbury glass plate by Chrystel Lebas, image size 246 x 327 mm. [Edward James Salisbury. (ca. 1905–1938). *Ranunculus lanormandi* & *Hederaceus*. Salisbury Collection (Box Belstone 1921–1091/1099, Plate No. 1098). British and Irish Herbarium, Natural History Museum, London].



Figure 5.9. Edward James Salisbury. (ca. 1905–1938). [Salisbury Collection (Box Beechwoods I – 1387/1391, Box Wood Interior, Box Hill, Plate No. 1391. Scan from negative). British and Irish Herbarium, Natural History Museum, London].

There are no images of social scenes representing the ecologists walking and talking within the environment, such as those images taken during the International Phytogeographical Excursion of 1911 by Elizabeth Cowles or Edith Clements (the

only two women—and wives—in the ‘official party’ (Cameron & Matless, 2011, p. 26). Cameron and Matless (2011) interpret these images by Cowles and Clements, which contain people, but make no attempt to identify the vegetation as indicative of a ‘seemingly practical division of the women’s photographs from the men’s [which] acted to separate simultaneously humans from vegetation, and (though Edith held a doctorate in botany) amateur from professional, culture from nature and the “social” from natural science’ (p. 31). Salisbury’s private collection also lacks images suggesting the emerging discipline of ecology at work, for example photographs of quadrats staked out within the environment or by people on ladders to gain an aerial perspective, as Cowles took. By contrast, images of social and technical practices can be seen in the Tansley collection at the British Ecological Society. Compared to the group of international ecologists whose work is gathered in the Tansley collection, Salisbury, on the evidence of the images found at the Natural History Museum, was primarily a lone ecological travel photographer.

5.3. Seeing the landscape

In Salisbury’s time, the use of photography in ecology was referential or indexical, a means of creating a window onto the environment. However, the medium of photography is also contingent on its chemical and physical materiality, the materials of the image substrate and the elaborate processes involved in making the negative image visible. Theoretical issues on the uncertain status of the photograph between discovery and invention are discussed widely within critical literature on photography (Holschbach, 2010, p. 137). This status impacts on the practices of working with and through photography in the context of art–science collaborations such as the one under discussion here. In this case, the team created a space for comparative study between historic and contemporary photographs, in which the aim was to correlate Salisbury’s ecological photographs and Lebas’ photographs of the re-visited locations. The process of interpretation was framed by two objectives: to read what Salisbury’s trained eye had seen within the field as evident in the photographic records and to interpret what we now see in the image between the discovery of data and invention. This difference stems from the very technology of photography, the subjectivity of the photographer and the variability

of what the individual viewer sees within the photographic image. The practices of 'seeing as' are inflected by these technological differences. In addition, from the outset of the project, Spencer acknowledged that 'people's perceptions about landscape are always slightly skewed by our own personal biases'.⁶² How were these collaborative processes of seeing at work in the landscape?



Figure 5.10. Chrystel Lebas and Kath Castillo on fieldwork, Rothiemurchus, October 2013. [Edward James Salisbury. (ca. 1905–1938). Salisbury Collection (Box Avimore, 1237–1249, Buried Pine boles in peat, Rothiemurchus, Plate No. 1242. Photocopy]. Photograph by Bergit Arends (2013).

The location of Salisbury's photograph, here held as photocopy, was never identified.

In October 2013 I accompanied Lebas and Castillo for a day in the Cairngorms National Park, Scotland. My observations in what follows are based on that excursion. Lebas parked her car in the public car park on the Rothiemurchus Estate, we got out of the car and took a signposted, tarmacked footpath. Lebas carried her camera and tripod. Castillo walked with her botanical equipment and walking stick, which she occasionally used to point out features in the landscape. I tagged along to observe the team at work and took the above photograph (Fig. 5.10.), along with many others documenting the collaborative walking and looking. The image shows Lebas taking a photograph with her camera on a tripod of what was thought to be

62. Mark Spencer, interview with the author, 17 December 2014.

the same view as one of those photographed by Salisbury. In taking this and other well-crafted shots, Lebas used a panoramic camera Noblex 150 and Fuji Professional NPH400, a film with a bluish hue.⁶³ The camera takes photographs with an angle of 146 degrees and the resulting images are said to correspond to the unaided space perception of the human eye ('Kamera Werk Dresden', n. d.). This panoramic format encompasses more of the environment than the single viewpoints that Salisbury was technically able to capture.⁶⁴ For example when comparing mountain ranges, the images by Salisbury make the mountains look condensed and steeper. The wide-angle lens used by Lebas renders the same mountain range undulating and expansive.

In preparation for the walks, the artist intensely studied the historic images, re-printing and enlarging them for close analysis in dialogue with the botanical collaborators at the museum. The printing, which took place in her own darkroom, entailed a skilful and slow process of manipulating the light to expose details held within the negative. This solitary printing process created an experience of the landscape by mnemonically habituating Lebas' with Salisbury's way of looking. Lebas' body itself—its vision enskilled by slow looking at images and imprinting them into her visual memory—became at this stage an archive of embodied, memorized images of the landscape Salisbury might have seen, but as represented in the image. Before physically walking the landscape, Lebas had already 're-visited', as the artist would say, or re-performed the image through the printing and mental imprinting processes. This would enable her to start seeing the landscape together with Salisbury's images. When she dwells in the landscape she thus has prior archival or mental images in mind; she *sees as* more than one kind of observer.

The reference image held up by Castillo in Figure 5.10. is a photocopy used as orientation while walking the landscape in order to identify the location Salisbury had reproduced in his photograph. My photograph documenting this scene is a *mise-en-abîme* in which Salisbury's photograph is embedded within the framed landscape view. Lebas is positioned to take a photograph that reflects his view and

63. Close-up photographs of plants were taken with a Mamiya 7ii a camera, which is particularly suitable for low light-level conditions.

64. Many questions remain unresolved on Salisbury's observations and choices made in the field. So far we have not found notes on the camera he used nor any field notes.

expands his image. Lebas and Castillo see through the past landscape environment into the present environment.

When botanist Castillo and artist Lebas worked together in the field, Castillo's role was primarily to find and identify individual plants and plant communities as depicted in Salisbury's photographs. In this process Castillo tried to be as 'accurate and faithful as possible, if not [to] the *exact* location, at least to the habitat and to the species [speaker's emphasis]' (Spencer, 2015). The scientific agenda was set by Spencer and followed by Castillo, who often reminded Lebas of the need for locational accuracy during their journeys together. This arrangement reflected the institutional hierarchy which positioned Spencer as senior curator and Castillo as the assistant botanist temporarily employed on this project. Castillo's emphasis on the project's scientific aspects reflected the Natural History Museum's institutional brief, in this case the scientific study of ecological change as reflected in a comparative study of Salisbury's historic photographs and Lebas contemporary photography, assuming an exact match of locations could be made. Lebas came to understand the visual framework set by the museum as 'replicating the scientific experimentation' and saw her own photographs as having a 'function in terms of science as well'.⁶⁵ In effect, the project was an experiment to test the potential contribution of contemporary field photography produced through collaboration between artist and scientists to the understanding of ecological change, specifically by integrating the resulting images into the NHM herbarium and electronic database. The process of calibrating the images against both archival images and museum standards took place through the visual reading, individually and collectively, of the glass negatives and contact prints; through printing of the historic images; through comparative study of the historic images and the landscape; and through the development of an understanding of the materiality and technology of the photographic images. These forms of calibration were linked to mutual understandings of project objectives, how each individual's expertise served the project process and the integration of the collection into the museum system.

65. Chrystel Lebas, interview with the author, 24 November 2014.

This process of calibration was characterized by different sociabilities, technical aspects and types of the materiality constituting the project's images, historic and contemporary. After walking together in the environment, the team would look together at the images produced by Lebas. The photographs are products of her solo and/or sometimes joint searches for locations and species within the field environment. The discussion, from which extracts are presented here, took place on the basis of a selection of images Lebas had produced for the project portfolio of photographs to be accessioned by the museum. Each photograph worked in conjunction with a historic image by Salisbury. Lebas sought advice from both botanists to select the most suitable ones to be accessioned into the collection.

In the social, discursive activity of 'seeing as' between the botanists and the artist, the botanists frequently referred to the 'botanical eye', as a specific example of skilled vision. In seeking to identify species from the photographic image, one of the botanists suggested that such a higher resolution and specificity of light can make the image more informative. With regard to finding the location sequences of images are important traces of the photographer's movement within the landscape, interpreted by the team as 'moving around to make connections'. A deep sense of connection is felt, when 'it's exactly the same spot, the *identical* spot' [speaker's emphasis].⁶⁶ As these images were to be selected for the museum's collection there was emphasis on the botanical data of the image content, its illustrative value of a habitat and the importance of the location for the comparative study, all in conjunction with aesthetic values. The collaborators were well aware of degrees of uncertainty and non-correspondence between different perceptions and readings of the environment. Looking, intuition, 'seeing as' seemed to follow each other:

I photographed this same space, without me knowing . . . I think I was photographing whatever was in water basically, water, ponds, because I thought I am not too sure, what is this plant, so I just photographed; actually I had the plant already, I had the species, so I did so without knowing.⁶⁷

66. Kath Castillo, Chrystel Lebas and Mark Spencer, interview with the author, 17 December 2014.

67. Lebas, group interview with Kath Castillo, Chrystel Lebas and Mark Spencer with the author, 17 December 2014.

The project was a new departure for the artist as she was working not only with an archive, but in collaboration with scientists. Lebas had explored relevant methodologies in previous projects, for example the selection of specific views onto the landscape, studied repeatedly during different seasons to reveal changes—a technique she also applied to this project.⁶⁸ The curatorial expectation on my part was that the project would build on and extend her prior artistic practice. However, as the work developed it was clear she was concerned about retaining her identity as an artist in a subjective engagement with the landscape:

Walking in the steps of someone, trying to understand his way of working and do I want to do the same or do I want to stay away and look at different ways of doing it? . . . It was quite difficult . . . it was very much about re-photographing, about finding the *exact* location, finding the *exact* point [speaker's emphasis].⁶⁹

Periodically on our walks the artist would stray off the path, to seek in her words 'what could be *my* view of the landscape'.⁷⁰ Equally, she benefitted from extended field exploration with botanist Castillo in search of the views which might correspond to the historic images. Their mobile discussions around species and plant communities, the chance encounters with particular plants, the classifications of species to be 'frequent' or 'rare', had to her a 'poetic aspect'.⁷¹ Moreover the poetics of revealing hidden aspects within the historic images through printing were as enticing to the artist as revealing concealed histories through photography within the landscape. Alongside the sense of the poetic and of 'wonder', the scientific collaborator in the field gives 'validity' to the artist's work.⁷² Lebas' own artistic practice was driven by a search for a sense of the sublime, felt as a sense of fear through being in the thickening darkness of the falling night and knowing neither the space nor what the future might hold for this environment. Back at the museum, she became immersed in the discussions as an active participant, or by

68. For example at the Domaine de Bel-Val in the Ardennes, France, affiliated to the Musée de la Chasse et de la Nature in Paris.

69. Chrystel Lebas, interview with the author, 24 November 2014.

70. Chrystel Lebas, interview with the author, 24 November 2014.

71. Chrystel Lebas, interview with the author, 24 November 2014.

72. Chrystel Lebas, interview with the author, 24 November 2014.

just listening into botanists' conversations, which gave her insights into the depths of a different disciplinary knowledge.

The search for precise evidence of environmental change proved challenging, as already discussed above. Moreover, the members of the project team approached this phenomenon in different ways: Lebas had an interest in environments shaped by humans, while Spencer was particularly keen to observe the effects of climate change. The team was looking for different types of changes: direct human interventions, be this in the shaping of the environment through, say, forest management or visible signs of pollution such as the presence of plastics; or human-induced climate change and, for example, consequential sea level rise and temperature changes causing changes in seasons, impacting on phenological events and vegetation boundaries. Spencer was realistic from the outset in his expectations concerning project outcomes, expressing the hope that change might be observed visually in the comparison between images from different time periods. But he was also aware that a quantifiable understanding of the processes of change and the underlying variables, would require further study. Nonetheless, the work undertaken by Lebas visually and textually highlighted aspects of environmental change in specific locations.

Notwithstanding her interest in human-caused change, Lebas' photographs present environments as void of people—even though the estate is teeming with present human activity. The landscape depicted in Lebas' photographs appears uninhabited. Yet the human shaping of the environment can be seen everywhere on the estate. In Salisbury's time, people would have used the Rothiemurchus Estate for walking and hunting. Today, the privately-owned estate boasts a range of leisure activities from walking to Quad bike trekking, clay target shooting, Land Rover safaris and wildlife photography. There is a cattle farm and a spring barley field. A visitor's comment reads: 'This is an amazing place, we feel so free, it's the real outdoors—stunning scenery, superb activities, beautiful shops and friendly people. We love it here' ('Larkhall', n. d.). The estate is thus in multiple human use for leisure, farming and agriculture, which shapes the environment for people making the 'real outdoors' their home. Lebas' strategy to represent human intervention is not by showing people within the landscape, but by bringing in

different voices to comment on the landscape and its human uses. In her work, Lebas lets different authors, not only Salisbury, speak about the specific locations she re-visited. A work can thus encompass three components that are montaged to complement each other: text elements of quotations by different authors about the species depicted and an outline map of the British Isles, with a red dot indicating approximately the location where the photograph was taken (Fig. 5.11.); Lebas' reprint and enlargement of Salisbury's black-and-white photograph; and Lebas' own landscape environment photograph itself. The first comparative showing was Lebas' photograph of the pines in Rothiemurchus and her reprint of Salisbury's photograph, as referred to earlier (Fig. 5.12.). The title of the work is *Re-visiting Pinus silvestris [illeg.] Plate n°1245, Aviemore, Rothiemurchus, October 2011 57°8.713' N 3°50.290' W* and reads like an archive record in itself. The work's title references her act of 're-visiting' and repeats the scratched inscription of the species depicted on the glass negative—here the pine trees—as well as the archival record number of Salisbury's original glass negative, alongside Lebas' own geographical location with its GPS co-ordinates and the date of her photograph. The reference points and co-ordinates necessary for the environmental change investigation are thus interlocking Salisbury's image and her performative act of walking.



Figure 5.11. Chrystel Lebas. *Re-visiting Pinus silvestris [illeg.] Plate n°1245, Aviemore, Rothiemurchus, October 2011 57°8.713' N 3°50.290' W* [Accompanying print with text and map. Screen shot].



Figure 5.12. Chrystel Lebas. *Re-visiting Pinus silvestris [illeg.] Plate n°1245, Aviemore, Rothiemurchus, October 2011 57°8.713' N 3°50.290' W. Size 390 x 490 mm.*

Salisbury considered the forest of Rothiemurchus in Perthshire ‘beautiful’. Such forest was during his time ‘only to be found . . . in Scotland itself’ with ‘original woodlands of our native strain of Scots Pine’ (Salisbury, quoted in Lebas, 2017, p. 48). Lebas refers to the publication *Plant form and function* (1938) by Fritsch and Salisbury in describing pine trees. As in the 1930s as well as in the present, these trees, part of the conifers and characteristic of temperate zones, are still in common economic use today to provide sources of timber, turpentine and resin (2017, p 49). She references the posthumous 1907 publication *Rothiemurchus* by Scottish religious and botanical writer Hugh Macmillan. The writer, quoted in Lebas *Field Studies* exhibition publication, enthuses about the ‘miles and miles of dark forest . . . usurping spots that in other localities would have been cleared for cultivation. You see almost no trace of man’s industry within the horizon . . . all the nature, primitive, savage, unredeemed’ (2017, p. 48). To the artist, ‘little has changed since then’ (p. 48). In her view the protected parts of the forest, left to undergo cycles of

natural decay and regeneration, co-exist with people and wildlife in the remains of the Caledonian Pine Forest.

5.4. 'This state of travel or wandering': Culbin Sands (Scotland)

In the archive box housing Salisbury's glass negatives of Rothiemurchus, Lebas also found two images of Culbin Sands—the only two images Salisbury took in the UK's largest sand dunes, also dubbed 'Britain's desert'. Lebas' work at Culbin Sands focused on human interventions into the landscape and resulted not only in photographic images but also a moving-image installation. Here again the artist explored the environment by walking, but mostly by herself, often late in the day, having to return to her car in the dark of night. The forest habitat here also emerges as a disorienting space of 'intimate immensity', in which the body experiences a limitless world (Bachelard, 1994, p. 185).

In addition to taking photographs, Lebas collected oral history material and conducted research into other photographic sources. Her works create again a montage in which textual, verbal and visual materials are assembled from different periods in time. Together they capture moments held in a structurally open composition and installation to show a continually changing landscape. To explore the coastal forest of Culbin Sands, Lebas made contact with the Forestry Commission to understand the regional practices of forest management on the Scottish East coast. In the commission's archive, she located photographic albums that documented the process of afforestation in the early to mid-twentieth century. The photographs, dating between 1909 and the 1970s, were taken by different foresters, providing a detailed visual account of planting strategies (Lebas, 2017, p. 81). In addition, Lebas interviewed environment ranger Allen Campbell at Culbin. Campbell talked about the changing coastline, the afforestation strategies used to stabilize the wandering dune formations, and the politics of landscape management. Lebas' insights into the management of the environment were also informed by the work of geographer Charles Warren (2009).

The Culbin Sands dunes as they are today have developed over centuries. It is recorded that from the late seventeenth century onwards deposits of silt from the river Findhorn created large dunes along the coast, over the years spreading over

meadows and pasture. The people who farmed there at the time—research has shown there were likely to have been five farms, a great house, church—cultivated some 735 acres of land. But at the same time they also incrementally destroyed their own living environment by pulling the Marram grass, which holds the sand in place, from the sand dunes to thatch their dwellings. The sand started to move eastward with the prevailing wind and the people of the Kinnaird Estate were left with little protection against the encroaching dunes. The storm of 1694 completed the loss of the cultivated land and the human dwellings. After that, Culbin remained largely untouched by humans, with some attempts at afforestation in the nineteenth century, until the Forestry Commission acquired the land in 1921 and started planting about a year later. First Marram grass was re-introduced, followed by the systematic planting of more grass and young trees. But the success of the planting was limited. By about ten years later, plants were lost and the sand started moving again, leaving plant roots exposed to wither and covering the trees so that only their top branches were showing. Different types of pine tree were trialled in this forest experiment from 1946–1954 to find species that could root themselves stably in the sands, find water and withstand the climate. In the late 1930s the sands were covered with young tree branches, or brushwood, which were laid out in the direction of the wind. This technique proved more successful to hold the sand and to break the wind's force. The decaying branches slowly added humus to the soil, thereby binding the layers of vegetation together. Once the forest was established, after about 20 years of pine tree growth, it was thinned by the removal of select trees, which were felled and sold for timber. Now native scots pine is the most widely-planted species. But the sand dunes continue to remain active, which can be seen in the blowout areas.

The ranger's explanations provide the sound track to Lebas' 4-channel video installation *The Wandering Dunes* (2016) along with the ambient sounds of the dune environment (the interview took place on the sandy beach). The artist's fascination with the site lies in the often vain attempts by humans to battle against the non-human forces of wind, water and sands. To understand Salisbury's images better, Lebas has also compared the ecological eye of Salisbury to the botanical eye of Robert Moyes Adam (1885–1967), landscape photographer in Scotland and

botanical illustrator at the Royal Botanic Garden in Edinburgh. Adam photographed the same area in Scotland, nearly at the same time as Salisbury. Lebas describes Adam's aesthetic, compared to Salisbury's, as 'strong', possibly because of his interest in drawing and illustrations.⁷³ Salisbury of course also drew, but his drawings are mostly of plant roots, sometimes of the outer lines of a plant. The only two photographic records of Culbin by Salisbury are an image of the sand dunes with sparse grass vegetation and pines, with the trees' branches hovering above the sand (Fig. 5.13.); and a second image showing comparatively dense grass vegetation with dead pines (Fig. 5.14.).



Figure 5.13. Silver gelatin print from E. J. Salisbury glass plate by Chrystel Lebas, image size 246 x 327 mm. [Edward James Salisbury. (ca. 1905–1938). Culbin Sands dunes. Salisbury Collection (Box 1237–1249–Aviemore. Plate No. 1248, BM001162008). British and Irish Herbarium, Natural History Museum, London].

The image shows grass vegetation and trees partly covered, their top branches visible.

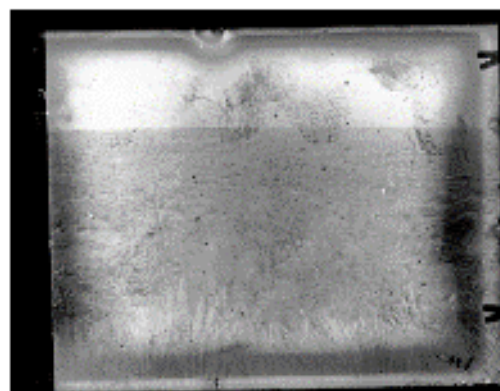


Figure 5.14. Silver gelatin print from E. J. Salisbury glass plate by Chrystel Lebas, image size 246 x 327 mm. [Edward James Salisbury. (ca. 1905–1938). Dunes Forres w. dead pines. Salisbury Collection (Box 1237–1249 Aviemore, Plate No. 1247, BM001162007). British and Irish Herbarium, Natural History Museum, London].

The image shows dead pine trees and a dense covering of grass.

The images capture the vegetation communities, their spread and isolated single plants. In his publication *Downs and dunes: their plant life and its environment* (1952), Salisbury was concerned with the calcareous soil and the changes that occur with the passage of time, both in the soil and the plant covering.

73. Chrystel Lebas, interview with the author, 24 November 2014.

For example, purging flax (*Linum catharticum*) was recorded on Culbin Sands in 1924, perhaps because of the then good supply of calcium contents (1952, p. 284). Its roots occur within the first 3–4 inches from the surface and rarely exceed 6 inches (p. 47). The book is illustrated with the author's drawings and photographs, but there are none of Culbin. At the time of his writing, Salisbury notes the young dunes of Culbin as non-calcareous and speculates on the effects of planting and the accumulative effects of plants and snails increasing nutrients in the sands through fallen leaves (p. 179). These levels of detail could not, of course, be captured by the camera.

To contextualize the images shown in Figures 5.13. and 5.14., Lebas (2017) quotes from Oliver and Salisbury's publication *Tidal lands: a study of shore problems* (1918):

Wherever accumulations of sand are laid bare, as by natural or artificial disafforestation, or where rabbits or storms break through the covered surface, causing injuries rapidly extended by the wind, dunes are liable to travel, i.e. to be transported in the direction of the prevalent wind, overwhelming everything they encounter. This state of travel or wandering is normal with dunes on desert areas where the conditions of drought, combined with the mobility of the sand, make the establishment of a vegetation uncertain or impossible. (p. 85)

This extract sets the physical forces of the wind into relation with the dune environment, vegetation, human action (implied through forest management) and non-human animals such as rabbits. As well as investigating these interactions by looking at various maps of the successive plantation of Culbin forest with the forest ranger, Lebas used the maps to work out strategic camera angles for her photographs and the video footage designed to capture the moving landscape environment. The four films (Figs 5.15.–5.18.) were shot from the beach looking at the moving dunes with the roots of the trees partly exposed, from within Culbin forest and from the top of a viewing platform above the forest's tree line. The artist placed the camera in four locations, for the camera then to independently film the environment through a 360 degrees rotation—a mechanistic, technological recording from a human-related perspective. The GPS co-ordinates for the related

photographs are included in the works' titles such as *Revisiting Culbin Sands dunes Plate n° 1248, Culbin, December 2013 (diptych) 57°39.749'N 3°39.435'W*. Here the visual framework, previously tacitly adopted in conversations during fieldwork and visual analysis of the images within the herbarium environment, evolves to be complemented by additional testimony, solitary walking and historic mapping. The 'view' has become informed by not only Salisbury's images—here a mere starting point—but also by the history of the environment itself. In her works on the ever-migrating Culbin Sands, Lebas highlights the agency of 'modern civilized' humans as active constituents of and the subjugators of 'nature' in which 'the sands must never be free again' (Anderson, 1955).

Lebas, through her consultation of different sources and testimonies as well as through the composition of her works, shows how 'nature' is imagined within its human context. If 'All human history has a natural context', as argued in the words of environmental historian William Cronon (1993, p. 13), the history of nature is equally unimaginable without its human context. Lebas shows us the historical interactions between humans and the natural environment in her works on Culbin Sands and in doing so undoes the distinction between human history and the history of nature. In his paper 'The temporality of the landscape' (1993), Ingold tries to go beyond the supposed opposition between the 'naturalistic view of the landscape as a neutral, external backdrop to human activities, and the culturalistic view that every landscape is a particular cognitive or symbolic ordering of space' (p. 152). Instead of this dualism, he proposes a 'dwelling perspective' in which the 'landscape is constituted as an enduring record of—and testimony to—the lives and works of past generations who have dwelt within it, and in so doing, have left there something of themselves'. Lebas documents a monumental landscape from multiple perspectives to create records of human traces in interaction with the agencies of the more-than-human and the non-human. She attends to the 'apparently fixed and invariant forms' and to the 'mobile and transient' ones that are 'dynamically linked under transformation within the movement of becoming of the world as a whole (Ingold, 1993, p. 168).



Figure 5.15. Chrystel Lebas *The Wandering Dunes, Untitled 1*, June 2015. Video HD, 11'01". [Video stills from 4 channel video installation with soundscape, autoloop].



Figure 5.16. Chrystel Lebas *The Wandering Dunes, Untitled 2*, June 2015, Video HD, 07'37". [Video stills].



Figure 5.17. Chrystel Lebas *The Wandering Dunes, Untitled 3*, June 2015, Video HD, 12'07". [Video stills].



Figure 5.18. Chrystel Lebas *The Wandering Dunes, Untitled 4*, June 2015, Video HD, 21'45". [Video stills].

Figures 5.15.–5.18. The soundscape is composed from natural sounds and the interview with Allen Campbell, environment ranger at Culbin. Campbell explains the history of the lost village, now covered by the dunes, the afforestation and naturally occurring environmental dynamics.

Lebas' works provide an enduring record, extending moments in time through her photography and filming. The spatial installation of *The Wandering Dunes*, organized through video screens hanging from the ceiling, invite wandering exhibition visitors to observe at their own pace and by choosing their own position within the work. The spatial layout is structurally open and affords multiple perspectives (Fig. 5.19.).



Figure 5. 19. Chrystel Lebas *The Wandering Dunes* (2016). Exhibition *Chrystel Lebas – Regarding Nature*, December 2016—March 2017. [Installation view at Huis Marseille Museum of Photography, Amsterdam]. Photograph: Bergit Arends

The work documents observational time in following the eye of the camera slowly moving through the landscape and by simultaneously listening to the narration about the environmental changes effected by humans and by non-human agency. The artist records the moving forms of the landscape at different scales and speeds to evidence how we do things to it and ‘how we move along *with* it [emphasis in original]’ (Ingold, 1993, p. 164). In both Lebas’ photography and film her choice of technologies and the method of repeat observations enable the

tracing of incremental change. This in turn opens up a perspective on the spatial and historical experience of the environment as a mental and aesthetic space of or for the viewer's experience (*Erfahrungsraum*). The space in which this experience takes place is not only multi-authored, but contains multiple layers of time. The temporality within the environment is drawn out through working with archival and contemporary photography to evidence environmental change. The landscape can thus be understood as animated, active and in continuous, albeit slow, motion (Ingold, p. 164). The project suggests a story of multiple hybridities: of diverse disciplinary outlooks among the participants, of unsettling movements of objects across disciplinary boundaries and of differing archival regimes.

5.5. Conclusion

Lebas spent months studying the archive and walking the landscape to follow in the footsteps of Salisbury. Some of his life and passion were traceable from the glass negatives of landscapes, his notebooks and his publications. Yet in some ways he still remains an enigmatic figure to the artist. She had to infer much about his motivations for the many journeys he undertook. Similarly, Salisbury's making and ordering of the collection remains a mystery to the museum botanists.⁷⁴ This study shows that Lebas' photographic images create a space in which the collaborating team finds not only data, but an identity as a team. Within the site of the image, the collaborators map and trace their own mental representations of an ecologically constructed environment between themselves and in a quasi-dialogue with the historic figure of Salisbury. An inter-subjective and inter-disciplinary space is thus created through an engagement with the historic archive of Salisbury's images; through the discussions about the images' content between the artist and botanists; and through Lebas' own subjectivity and methods inspired in part by Burke's notion of the dark and enormous sublime.

Salisbury's archival images served as locational marking points from which to start the explorations of vast landscape environments. A tacit visual framework enabled the developing and collaborative ways of seeing the landscape and the

74. Mark Spencer, interview with the author, 15 May 2015.

reading of ecological, botanical and geographical information within the images. The images of Rothiemurchus became the inspiration for the visual framework. The images of Culbin served to interpret human-environment relations within temporal-spatial frames. Even if humans are not to be seen in Lebas' photographs, the artist represents humans through the traces they left behind in the landscape environment. Lebas brings in multiple practices of seeing the environment, including the scientists' and the ranger's, to see and to represent these traces. The processes of visual analysis, oral history and geographical mapping combined started to correlate visual differences and causal effects within the environment, but as Spencer concedes in relation to environmental change, the Salisbury collection is 'only the tip of the iceberg with regards of potentials of photographic collections'.⁷⁵

The images in Salisbury's collection are thus re-performed within a number of spatial situations—the herbarium, the field, the studio—and through varying levels of knowledge and affect. The process of fieldwork, according to Castillo, augmented the understanding of the information recorded on the slides, but also created spatial memories: 'It's funny how you look at them again and you could actually be there'.⁷⁶ This enhances the recognition of environmental change by connecting the representational space of a work of art to the dynamic space within the landscape as the photographer and botanist move through it. The sociability of observation and authorial voices find their way into the making and the aesthetics of Lebas' photographs and films. Through the structural device of montage her work overlays different temporalities and spaces to detect environmental change. The artist and her collaborators thus open up the spatial and historical experience of environments for themselves and the viewer.

Lebas' photographs thus allow for two different readings: one as a subjective and aesthetic representation of a landscape, based on the re-visited environment; another in juxtaposition with Salisbury's archival photographs, where her images contribute to the representation of environmental change. The project examined in this chapter therefore has multiple epistemological values in understanding an

75. Mark Spencer, interview with the author, 15 May 2015.

76. Kath Castillo, interview with the author, 17 December 2014.

experience of landscape through photographic representation, in tracing human intervention in the landscape and in charting environmental change. Lebas' works show us a sentient landscape that is tangible and full of life, be it human or non-human. As an artist, she takes part in current and past environments through walking and collaborative looking. Her complex and comprehensive photographic series build on the archive, intertwining botanical and ecological knowledge with the search for a better understanding of environmental change as well as for the sublime.

6. Deep archive: Nguyen the Thuc *Kohle unter Magdeborn* [Coal underneath Magdeborn] (ca. 1976)

6.1. Introduction

You see more in a foreign country.⁷⁷



Figure 6.1. View of Störmthaler Lake, April 2015 [Photograph].



Figure 6.2. Fossilized tree fragment, Zweckverband Abfallwirtschaft Westsachsen, April 2015 [Photograph].

I stand on top of a waste mountain overlooking the turquoise mirror of the Markleeberger and Störmthaler Lakes near Leipzig in Germany on 15 April 2015 and find it hard to imagine open-cast brown-coal mining here (Fig. 6.1.). The steep banks of the lakes have been shaped by the geometrically regular cuts of the rotating wheel diggers of the former mine. The Braunkohlenkombinat Espenhain [Brown coal Kombinat], though a surface mine, scored deeply into the landscape to unearth the crumbly brown coal between 1937 and 1994. The mining site ran about 60 to 100 m down into the coal of the Carboniferous forest, compacted over a period of about 50 million years. The trees did not always fossilize into brown coal. Sometimes parts of fossilized trees would get stuck in the diggers' metal teeth. I saw some of the trees' remains lying in the lorry entrance to the waste deposit area

77. 'In einem fremden Land sieht man mehr'. From 'Meine bisherige Entwicklung in der Fotografie', [My development in photography so far] (p. 8), by Nguyen the Thuc, 1978 (Diploma diss., Hochschule für Grafik und Buchkunst Leipzig. All translations are by the author, unless otherwise noted.

of the Zweckverband Abfallwirtschaft Westsachsen [Association for waste management West Saxony] (Fig. 6.2.).

I stand in drifting, cindery dust stirred by a warm April breeze. The dry particles get into my eyes and into my throat. Vans drive across the waste mound, spraying a veil of water onto the decomposing black soil and diaphanous plastics to stop them floating into the air. My guide is Herr Krah. He is a former employee of the Braunkohlenkombinat (BKK) Espenhain, then in the German Democratic Republic (GDR). I interviewed him that morning not far from here at his house, where he lives with his wife. Their children have moved away to Norway and to the former West Germany, the old Bundesländer [federal states]. When I arrived for the interview, Herr Krah announced that he had arranged a visit to a place from where I would get a good overview of the former mining site, so that I would understand what he was referring to. Having had lunch, we drove to the waste deposit mountain and to the company managing the waste from the Western Saxony region in the former mining site. Herr Krah walked quite sprightly into the company's office (we kept on bumping into former employees of the Braunkohlenkombinat during our visit) and the young woman in public relations gave permission for us to visit. Herr Krah, long retired now, still has keys to unlock the barriers blocking our way across the vast site.

The area is not only dominated by the waste mountain, but also the coal power station Lippendorf to the South-West, the motorways B95 and A38 cutting through the landscape like veins and the new red bridge stretching across the water. Oddly, I keep on thinking about Caspar David Friedrich's painting *Der Wanderer über dem Nebelmeer* [Wanderer above the sea of fog] (1818) as we stand there in the dusty wind and survey the lakes with their white tourist cruise boats and floating raft, rudely called *Vineta*. The Northern mythical city of Vineta was in historic, popular imagination believed to have had an excessive way of life. Its inhabitants were punished by a flood and sunk into the Baltic sea. Vineta suggests a *Trugbild*, an illusion. The domed structure on this floating island, mimics the steeple of the former church of Magdeborn, not a mythical but an actual place erased in the late 1970s and, more recently, flooded. *Vineta*, an event platform anchored to the lake's



Figure 6.3. Aerial view of the Magdeborn area before the flooding, April 2015. [Photograph].



Figure 6.4. Copy of 1904 map of the Magdeborn area. Scale 1:25 000 [Photograph].

floor, commemorates the 14 villages and their approximately 23,000 inhabitants condemned to yield to BKK Espenhain ('Vineta', n. d.).

Across the smooth surface of the Störmthaler Lake, Herr Krah and I are trying to locate the ill-fated village of Magdeborn. He has a Google Earth print-out, a screenshot from before the flooding, on which his former family house and the Magdeborn church are marked (Fig. 6.3.). We compare the aerial view with a map from 1904, Magdeborn at its centre (Fig. 6.4.). These buildings are now fictions laid down by precise GPS co-ordinates. The 1,000-year history of the village was destined for destruction, it was a place living on borrowed time. In 1971 an irrevocable decision was taken by the state. On 3 September 1978 the evangelical-Lutheran church of Madgeborn was deconsecrated. On 19 August 1981 at 15h07 the building was blown up. For some reason I strain my eyes to see something through the watery mirror. There is nothing I can detect. The village was cleared in the late 1970s and early 1980s. The coal mine expanded, became part of BKK Bitterfeld in 1980, but then was gradually closed from 1990 until 1994. The area was progressively flooded from 2003 until the Störmthaler Lake was opened to the public in April 2014, a year before my visit.

I originally came to Leipzig in order to study works made there at two very different historical moments by artists Nguyen the Thuc and Christiane Eisler. The late 1970s photographic project by Vietnamese photographer Nguyen (b. 1949 in Nam Dinh, Vietnam) documents social and environmental impacts of the intensifying coal mining in the area south of Leipzig during the time of the German Democratic Republic (1949–1990). Nguyen captured in social-documentary photography the life of the village of Magdeborn in the last months of its deliberate destruction by the state. The village was decanted and its built infrastructures were removed to make way for brown-coal resource extraction on, then, an unprecedented industrial scale. Nguyen’s photographic book *Kohle unter Magdeborn* [Coal underneath Magdeborn] was made over several months in the period 1977–1978.⁷⁸ He undertook the project while studying at the Hochschule für Grafik und Buchkunst (HGB) [Academy of Fine Arts Leipzig] from September 1972–July 1978 (Nguyen, n. d.). His document of social change and environmental impact, a diploma project, was only recently rediscovered by Julia Blume and Heidi Stecker during their research for the 2014 exhibition project *Freundschaftsantiqua*. The exhibition title, translated as ‘Friendship antiqua’, refers to a type font design by Chinese calligrapher Yü Bing-Nan, developed during his studies in Leipzig and cast in 1964 by VEB Typoart, Dresden. This title goes straight to the heart of the exhibition’s proposition: to make visible a hidden chapter of the GDR’s cultural history of internationalism, the ‘friendship’ between states. Curators Blume and Stecker showed works by the academy’s non-GDR students to address a much-neglected aspect of international art in East Germany, especially since the GDR tends to be referred to as a ‘shattered society’.⁷⁹ These students mostly came from African and Asian developing countries and other European socialist countries (Blume & Stecker, 2014a). The teaching at the Academy of Fine Arts encouraged the students to adopt a critical, realistic

78. The archival record dates the work as made in 1976, as consequently did the *Freundschaftsantiqua* exhibition label. However, Nguyen (1981, p. 53) states that he only started his photographic work in 1977. Indeed, one of the images displays the date ‘21.3.77’ (Fig. 7.1.) It is not clear when the work was finished, but it was definitely by summer 1978 as Nguyen received his diploma on 21 July 1978.

79. See the survey exhibition and accompanying publication of GDR photography *Geschlossene Gesellschaft: Künstlerische Fotografie in der DDR 1949–1989* (Shattered Society: artistic photography in the GDR 1949–1989) at Berlinische Galerie, Berlin, 2012–2013. The exhibition title ironically refers to the rift between socialist vision of internationalism and the state’s everyday reality.

perspective on life in the GDR. The international students often worked on subject areas that were taboo, such as the life of the elderly and those with disabilities, religious life, the difficulties of everyday life or environmental destruction (Blume & Stecker, 2014b, p. 8). Through the 2014 retrospective exhibition and accompanying publication, the curators also intended to contribute to current societal discourses on education and cross-cultural exchange. The medium of photography was selected as the exhibition focus due to its propensity to visually communicate across different cultures. This medium also appeared, according to the curators, to have allowed for greater freedom in the choice of subjects portrayed and photographic methods (Blume & Stecker, 2014a, p. 83). The works in the exhibition were drawn from the Academy of Fine Arts' archive of student works made in the period 1956 to 1990 when each student was required to deposit a copy of their diploma project in the art school's archives. The works by non-GDR students were complemented by newly commissioned works by two artists, both also graduates of the Academy of Fine Arts. One of them was Christiane Eisler.⁸⁰ Eisler (b. 1958 in Berlin) has lived and worked in Leipzig since her studies from 1978 to 1985.⁸¹ She was commissioned to respond to Nguyen's work and the transformed landscape. The *Freundschaftsantiqua* exhibition took place at the Galerie für Zeitgenössische Kunst Leipzig [Gallery for Contemporary Art] from 31 January to 1 June 2014.⁸²

Nguyen's *Coal underneath Magdeborn* is a unique artistic representation of not just the extensive landscape transformation in 1970s East Germany, but also the correlation he makes between the mined landscape and its social impacts. His project was undertaken under pressure to create a documentary archive of the village at a time when it was slowly being vacated and becoming less and less tended. With the passing months, village life itself had gradually passed away from

80. Rozbeh Asmani and Christiane Eisler; and exhibition designers Kay Bachmann and Philipp Paulsen.

Asmani's work *Ferngespräche* [Long-distance call] (2014) developed a format for recorded interviews with former students represented in the exhibition, enquiring about their experience of life and teaching at the Academy of Fine Arts, Leipzig.

81. During the time of her studies Eisler's surname was Schwenn.

82. *Freundschaftsantiqua* exhibiting artists were: Dang Dinh An (VN), Julien de Boel (BE), Mahmud Dabdoub (LB), Grzegorz Fudala (PL), Gábor Kopek (HU), Nándor Losonci (HU), John Lutaya (EAU), Nguyen Tai Minh (VN), Yü Bin Nan (CN), Enchbat Rozzongijn (MN), Jiri Šalamoun (CZ), Silvia Sheleva (BG), Dikran Stambolian (BG), Nguyen Van Than (VN), Nguyen the Thuc (VN), Jaroslaw Krzysztof Wójcik (PL) as well as Christiane Eisler (FRG) and Rozbeh Asmani (FRG).

view. Eisler's photographs capture social life, sites of labour and the landscape of the Leipzig region. By connecting the archive layers of a landscape, the works by Nguyen and Eisler, seen together, mutually enforce visual impressions of loss as well as creating a temporal span in which environmental change is observed and felt.

Nguyen's project was undertaken within the freedom of an artistic space created within the Academy of Fine Arts and its teaching in the 1970s. At the same time this work needs to be considered in the context of the Cold War and the strategic military destruction of the natural environment of his native Vietnam. The devastation of ecosystems during the American war in Vietnam (1965–1973) and the displacement of Vietnamese people from rural to urban environments for reasons of safety are referenced in Nguyen's personal and photographic development. His documentation of the brown-coal mining landscape— 'we call it moon landscape' (Nguyen, 1981, p. 52)—echoes the 'lunarization program' of the American army (John Lewallen, quoted in Bankoff, 2010, p. 217) that saturated landscape areas with bombs, creating craters and causing above ground devastation. Nguyen's representations of landscape devastation through coal extraction and displacement of people suggest memories of the environmental and social changes that took place during the American war in Vietnam.

Although I was unable to trace Nguyen for interview, this case study analysis is supported by my own experience of the landscape and interviews with the people I met. My study of the photographic works within the archives and discussions with Eisler and exhibition curator Blume inform the works' descriptions and analysis of their exhibition context. In section 6.2., after describing the material chosen for the exhibit, I outline the exhibition space of *Freundschaftsantiqua* (2014) and its architecture of access and archival information infrastructure. For the exhibition Eisler photographed the landscape area that Nguyen had photographed 37 years earlier. Eisler's re-visiting of the transformed landscape is a re-performance of an archival work, loosely intuited and suggested by the exhibition curators. The parameters of the original situations have changed, yet the two artists' working methods are comparable in tracing and analysing societal transformations and their relation to landscape.

In section 6.3., I discuss Nguyen's and Eisler's specific representations of individual and social lives and of the specific Leipzig cultural landscape, in which nothing is left untouched by humans. The landscape is thought of as an archive in itself and as embodying the changes of time within the environment. For contextualization I reference other photographs of the landscape of the Leipzig region made in the period of time between the bodies of work by Nguyen and by Eisler. In section 6.4., I describe the teaching at the Academy of Fine Arts, through which the photographers developed their working method of social-documentary photography. Finally the works' contents are broadly framed through a brief consideration of global energy and resource markets and the effects of the Cold War in Vietnam and East Germany.

6.2. Nguyen the Thuc and Christiane Eisler at *Freundschaftsantiqua* (2014)

The exhibition *Freundschaftsantiqua*, part of a series of exhibitions to mark 250 years of the Academy of Fine Arts Leipzig in 2014, opened up the archive of international students' photographic projects. Nguyen's *Coal underneath Magdeborn* is a cloth-bound book. The work's narrative develops in 112 primarily black-and-white images, punctuated with 9 colour photographs. The story traces village life and its abandonment. The project's changing title is telling: its working title was *Magdeborn und sein Umzug* [Magdeborn and its removal], referring to the village and its move to somewhere else, whereas *Coal underneath Magdeborn* draws out the agency of coal, its location in relation to the village and how its presence and mining directly affected the place. Leipzig and its surrounding villages are located at the confluence of three rivers. The low-lying Leipzig basin holds extensive deposits of lignite, commonly known as brown coal. Many inhabitants of the rural village had small holdings and worked the land. Nguyen recorded details of their everyday lives and work, photographing adults and children alike, as well as their festivities and religious celebrations. Like other students, he tried to address subject areas that were not considered part of a canon as prescribed by the state (Kühn, 1997). His photographs today appear particularly poignant knowing, as we now do, that it was forbidden to talk critically about the process of 'decanting' populations or problems of environmental despoliation under the GDR regime.

Nevertheless, religious groups in particular started to draw attention to the toxic environments around Leipzig at the time, contributing to the wider dissidence that led eventually to the momentous political changes of the late 1980s.

Eisler's work in 2013–2014 traced the inscription of the landscape as one occupied by the accumulation of waste and the pursuit of leisure, which is what I too observed. Her conceptual approach to making photographic works in series, like Nguyen's, is guided by empathy and affinity. Their working methodologies are similar to the extent that they seek to develop a relational, long-term observational strategy. Eisler knows Leipzig and its people well since she moved there from Berlin to take up her studies. In her work she chronicles the lives of marginalized individuals often over extended periods of time. Her portraits of East German punks in Berlin and Leipzig, published for her diploma project *Ich trage ein Herz mit mir herum* [I carry a heart around with me] (1983), were relegated to the so-called 'Giftschrank' [poison cupboard] of the Academy of Fine Arts as a measure of censorship—for non-conformist self-expression was not permissible to the state. Eisler has since followed the lives of these punks and has photographed them over the years.⁸³ Similarly, in 1983 she photographed young adults at the Jugendwerkhof [closed juvenile detention centre] Crimmitschau. Her sensitive portraits give rare insights into this closed and authoritarian world experienced by young adults whom the state perceived as difficult to educate and in need of socialist reform. Eisler's work is characterized by long-term observations of not just individuals but also of changing societal circumstances and labour environments (Muschter, 1991, pp. 50–55; *Luxus Arbeit*, 1992). Equally, her observations of landscape reflect environmental change, such as in the recent group exhibition *Grenzbegegnungen* [Border encounters] (Petersen, 2014). Eisler contributed three photographic series to the *Freundschaftsantiqua* exhibition: *Arbeitslos* [Unemployed] (2013–2015), a series of monochrome images of defunct sites of labour; *Heimatlos* [Homeless] (2012), colour images of children from immigrant families at play in Leipzig's Eastern district [Leipziger Osten]; and *Uferlos* [Borderless] (2013–2014), colour

83. The publication of these works is forthcoming. Christiane Eisler, *Wutanfall: Punk in der DDR 1982–1989. Die Protagonisten damals und heute* [Fit of rage: punk in the GDR 1982–1989. The protagonists then and now].

photographs of the former BKK Espenhain mining site, in whose depths lie the traces of the Magdeborner Heimat [homeland]. Eisler's *Uferlos* photographs, responding directly to Nguyen's project by re-visiting the area he photographed, represent the transformed landscape in the winter of 2013–2014, a year before my own visit to the site. Whereas Nguyen had focused on the human social life in his portrayal of Magdeborn, Eisler depicted a transformed, 'futuristic' landscape devoid of people.⁸⁴ Her landscape, it seems, is awaiting a history yet to come.

The photography of the Academy of Fine Arts, including that of Nguyen and Eisler, was characterized by a particular form of narrativity. Curator Barbara Steiner, also of the Galerie für Zeitgenössische Kunst in Leipzig, describes how photographic images by graduates from the Leipzig academy are more than visual records; they tell a story—the history of a society, of a region. These photographs are not abstracted from time and place; on the contrary, they are imbued with a sense of both the texture of place and the passage of time (Steiner, quoted in Bertho, 2009, para. 27). By opening up the archive of the Academy of Fine Arts Leipzig, the *Freundschaftsantiqua* exhibition enabled visitors to discover for the first time (or maybe to re-discover) the works of international students. It seems apt to think of Nguyen's images as having been submerged and brought to the surface by curatorial instinct.⁸⁵ His photographic book *Coal underneath Magdeborn* (Fig. 6.5.) uncovers a place that is now lost by speaking of and with the people whose lives were determined and characterized by brown coal, its mining and conversion. The photographs document the emotions and memories of the inhabitants of Magdeborn in the months leading up to the move; their social habits and routines, customs and labour; and the events of the move itself to other villages or modern new-built suburbs of Leipzig. The work's focus is on the social-documentary, but as I will show, Nguyen causally connects the encroaching industrial environment with the changing landscape from rural village to new housing estate.

84. Christiane Eisler, interview with the author, 14 April 2015.

85. Teju Cole describes the sense of submersion of images in reference to the photographic work *Disappearing Shanghai: photographs and poems of an intimate way of life* (2012) by Howard French, a five-year chronicle of the streets of Shanghai (Cole, 2012, p. 166).

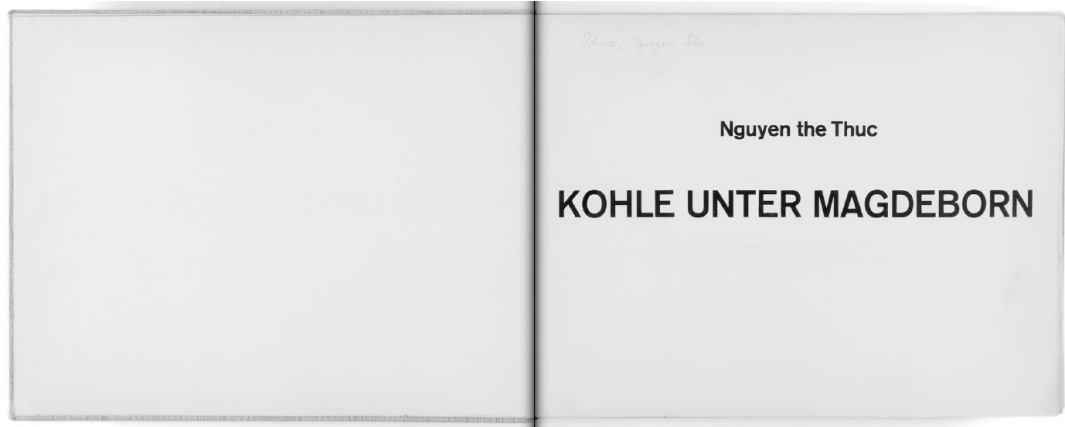


Figure 6.5. Nguyen the Thuc [n. d.] *Kohle unter Magdeborn* [Coal underneath Magdeborn]. [Photography of opened book. Half-title page on the right page. 29.5 x 22.7 cm]. Archive of the HGB Leipzig, Germany.

The archive entry for the work reads: Thuc, Nguyen The (DR/SR Vietnam) 1972–1978 (1976) o. J. 1. Buchform, 1.064: Kohle unter Magdeborn. Nguyen the Thuc (Studienarbeit), o. J. Einband, ohne Text, 194 Seiten, 29,5 x 22,7 cm. [Thuc, Nguyen The (Democratic Republic/Socialist Republic Vietnam) 1972–1978 (1976) n. d. 1. Book format, 1.064: Coal underneath Magdeborn. Nguyen the Thuc (diploma project) n. d. binding, no text, 194 pages, 29.5 x 22.7 cm].

Käthe-Kollwitz-Strasse, Karl-Liebknecht-Strasse, Karl-Marx-Platz, Göhrener Strasse, Leipziger Strasse: these street names suggest a mnemonic structure of Magdeborn. They were mentioned by those people I met who used to live in the village. I am looking at an image of a lone figure walking an earthen path in the snowy landscape (Fig. 6.6.). The path converges towards a bridge and a tree-lined, busy road. Houses and a church are in the distance. I am in the archive of the Academy of Fine Arts Leipzig. The landscape I see is the opening image of Nguyen's photographic book. The following double page offers on the left an image of village houses, with building rubble in the foreground and smoking chimneys of a power station in the background. The image on the right is titled 'Weg führt zum Tagebau' [Path leading to the open-cast mining] (Nguyen, 1978, n. p. [17]). Next is an image of a man in his work clothes and hard hat—maybe Herr Hering, as I find out in discussion with Herr Krah—posing casually inside the cabin of the conveyor bridge. The photograph beside it depicts the conveyor bridges at work in the coal mine. To me the machines look like spidery insects crawling across the landscape into the distance. Over the page, I am back in the village: thick black smoke rises from a pile of burning household goods, a man in work clothes is about to throw a bedframe

into the fire. Domestic objects have ceased to be part of a private environment, they have become exposed and are turned to waste (Fig. 6.7.). The image on the right (Fig. 6. 8.) documents a bulldozer among building rubble from which dust clouds are rising, its dark shovel a thick horizontal line in the foreground. Then the image size becomes smaller, as if in a family photo album with indoor scenes (Fig. 6.9.).



Figure 6.6. Nguyen the Thuc [n. d.] *Kohle unter Magdeborn* [Coal underneath Magdeborn]. [Photograph of open book. Black-and-white photograph on the right page. No text. No pagination]. Archive of the HGB Leipzig, Germany.



Figure 6.7. Nguyen the Thuc [n. d.] *Kohle unter Magdeborn* [Coal underneath Magdeborn]. [Photograph of open book. Black-and-white photograph on the left page. No text. No pagination]. Archive of the HGB Leipzig, Germany.



Figure 6.8. Nguyen the Thuc [n. d.] *Kohle unter Magdeborn* [Coal underneath Magdeborn]. [Photograph of open book. Black-and-white photograph on the right page. No text. No pagination]. Archive of the HGB Leipzig, Germany.

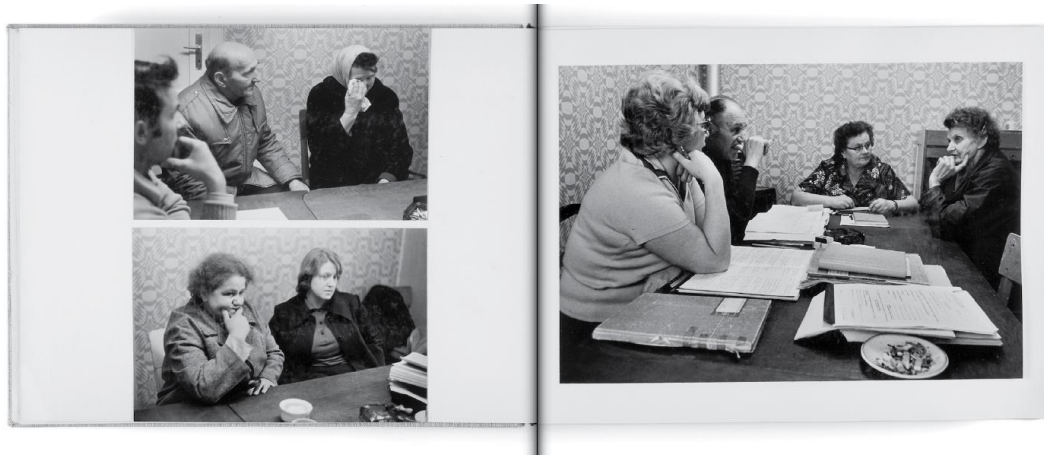


Figure 6.9. Nguyen the Thuc [n. d.] *Kohle unter Magdeborn* [Coal underneath Magdeborn. [Photograph of open book. Two b/w photographs on the left page, one black-and-white photograph on the right page. No text. No pagination] Archive of the HGB Leipzig, Germany.

On the left, people sit at a table, still wearing their coats. Is this a short meeting? At the top, a woman holds a handkerchief to her face, two men sit next to her. They are Familie Riedel: Lothar, Rudolf and Marion. In the image below is Familie Seiler.⁸⁶ On the right-hand side of the double-page I can see the length of the table covered with piles of papers, the bureaucracy of the move. Frau Ella Zschärpe sits at the head of the table. She is responsible for the *Ortsverlegung* [village relocation] conversations during which people from Magdeborn are allocated new homes. These discussions took place in the midst of the village in the process of being cleared, with people leaving between then and 1979. Its 2,857 inhabitants were decanted to nearby villages Borna, Markleeberg or others, or the Leipzig suburbs Thekla, Grünau, Möckau, Schönfeld (Nguyen, 1981, pp. 52–53). The photographer Nguyen is invisible, a quiet observer of these harsh scenes and patiently at work. Expressions of grief, disappointment, the holding up of a handkerchief are fleeting. His photographs hold the uneasiness of these interactions between people, in which one is acting on behalf of the state. Looking at them, I am a witness to people losing their homes, their occupancy within the village, their

86. In conversations with former inhabitants of Magdeborn, I learnt some of the names and professions of those portrayed: Fleischerfamilie [butcher family] Schramm, Bauernfamilie [farmer family] Hofmann, Gärtner [gardener] Herbert Dipper, Lehrer [teacher] Zerche, Kleinbauer [small holding farmer] Gerhard Selig, Fleischer [butcher] Winter. I hear the names of the children Ivonne Schröeder, Dietmar Donner on the stairs with the cat Mitzi, the school child Simone Böhme, the babies Eileen und Kathleen Schramm.

social community and their sites of memory and their experiencing the uncertainty of a new dwelling.

One of Nguyen's artistic references was the photography of Henri Cartier-Bresson (1908–2004) whose notion of the 'decisive moment' inspired Nguyen as much as it did many practitioners of photography in East Germany (Kühn, 1997). In his 1952 publication *Les Images à la Sauvette*, Cartier-Bresson describes the precision and organization of forms that give an event its proper expression. But the French title, literally translated as 'images on the sly', suggests a different truth about photography (Cole, T., 2016, pp. 161–162). The expression captures humility, uncertainty and mystery in collaborating with the world. To limit this collaboration with the world to just one moment would miss the point; instead there are multiple moments to discover. Nguyen's combination of images in the ensemble of the three indoor shots described above (Fig. 6.9.) reveals such multiple moments. He worked with a small format camera—his first camera was a single-lens reflex Exakta—that allowed him to respond quickly to situations and to create tension (Nguyen, 1978, pp. 4, 16). The group of images capture a similar situation, but experienced by different sets of individuals. These moments are arranged around the strong geometric lines of the table, central to the image composition. In the large image the table is used to create an almost breath-taking vanishing point towards the authoritative figure of the woman charged with the administration of the move. Here the diagonal line of the table edge creates momentum, splicing each of the two images on the left to suggest a divisive tension between the table surface, the people sitting at the table and the wall pattern.

The sequence of photographic images in Nguyen's book continues with more documentation of devastation. A full-bleed double-page image depicts a woman pushing a wooden cart on a path with rubble in the foreground and two diggers in the background (Fig. 6.10.).

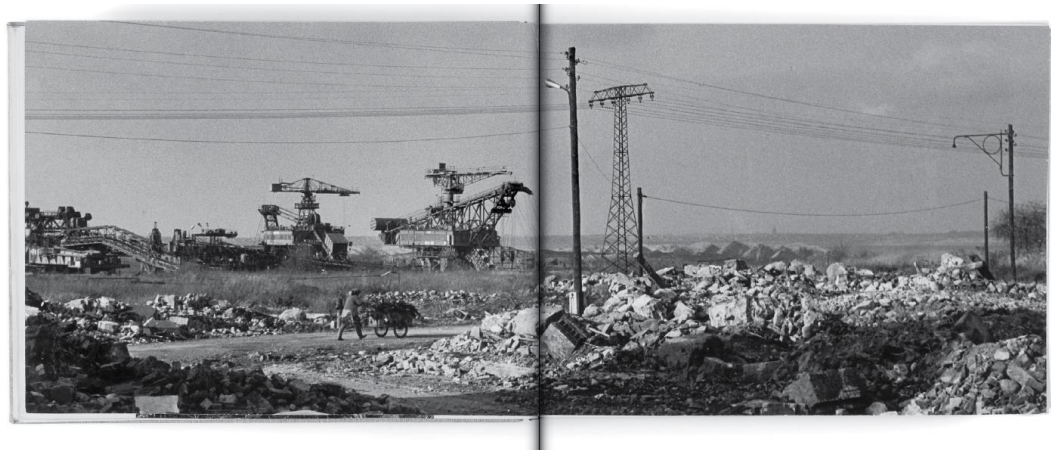


Figure 6.10. Nguyen the Thuc [n. d.] *Kohle unter Magdeborn* [Coal underneath Magdeborn. [Photograph of open book. Two b/w photographs on the left page, one black-and-white photograph on the right page. No text. No pagination] Archive of the HGB Leipzig, Germany.

I see images of the village in springtime. A herd of sheep, a rooster sitting on a farmgate, a formal still-life in colour of a DRGM (Deutsches Reichsgebrauchsmuster) threshing machine. These quiet images serve as moments in which the chronicle almost holds its breath. Views of the surrounding environment also narrate the story of the individuals Nguyen endeavoured to capture. These are the stage sets of their mundane lives. He photographs landscape and 'Chinese lantern' flowers in their autumnal orange colour, gardens, house exteriors, domestic private interiors and work environments. Here is a lively, laughing conversation between two women through the shop window. A large man in wellies sits on a wooden, slatted bench, looking grumpy. These are images of unhurried life, of life un-harried.

Some portraits are quite staged—a farmer, the hairdresser, the chimney sweep, the two local village butchers and their families, two elderly sisters sitting within their living room. Here, August Sander's (1876–1964) early twentieth century typological photographs of people in their professional attire, representative of Weimar Republic society, served as direct inspiration (Nguyen, 1978, p. 20–21). But in my view, these images are often too self-conscious, Nguyen trying hard to frame the portrait. Other portraits are more fleeting and show people in conversation, as if photographed in passing. For some images, American photographer Paul Strand (1890–1976) provided Nguyen with inspiration. Here he adopts the frontal

composition Strand used in portraits set within interior or exterior environments. But it is primarily the focus on the lives of ordinary people that connects the learning and aspiring photographer with Strand and the book as format (MacDonald, 2004). One of my favourite sets of images are the women of the LPG (Landwirtschaftliche Produktionsgenossenschaft) [agricultural production cooperative]. They are seen laughing heartily—flirtatious—sitting in the canteen and standing in the field. As the narrative of the book unfolds, life moves indoors, the atmosphere becomes more private. There is less street photography. The cataloguing of professions and festivities is done. There are more and more domestic scenes with people around the coffee table, having lunch, children doing their homework, or, later, final scenes in the houses about to be left behind. Nguyen describes his photographic process as an attempt to capture the unity of people within their environment (Nguyen, 1981, p. 52). In his diploma thesis ‘Meine bisherige Entwicklung in der Fotografie’ [My development in photography so far] from 1978, he says:

When I photograph people I attempt as best as I can, to understand and communicate the feelings and problems of the people I record, by getting into contact with them, to quickly gain their trust, and to observe their appearance and demeanour, their environment. (p. 13)⁸⁷

Nguyen’s methods to achieve trust and to get close to the subjects was to spend as much time as he could in Magdeborn, sometimes staying overnight, and to have conversations with people in their everyday situations. He had learnt German, one of the conditions of studying in Germany, prior to his stay and then at the Herder-Institute in Leipzig (Haupt, 2014, p. 41). His language skills helped him to communicate and to network. His personality and attitude opened doors for him and he was let into people’s homes. Herr Krah, my guide on fieldwork, met Nguyen the Thuc in 1977 when he spent time in the village and described him as eager to learn and diligent. Herr Krah is glad that Nguyen photographed the village and

87. Original text: Beim Fotografieren von Personen bemühe ich mich, so gut wie ich kann, die von mir aufgenommenen Menschen und ihr Gefühl, ihre Probleme, zu verstehen, mitzuteilen, indem ich den Kontakt mit ihnen aufnehme, schnell ihre Liebe gewinne und ihr Äußeres und ihre Haltung, ihr Milieu genauer anschau.

grateful for the documentation.⁸⁸ Others also remember Nguyen as friendly and modest (Haupt, 2014, p. 41).

Though Nguyen was inspired by American and European photographers, he sought to be true to himself, his own culture and sense of self, in a search for subjective and artistic identity. 'I am Vietnamese', he concedes, 'our mentality is quite different from the world of emotions here' (Nguyen, 1981, p. 53). *Coal underneath Magdeborn* was made over a period of a few months in 1977. Nguyen however felt that he should have come earlier since the process of decanting and destruction had started in 1973. He only captured a fragment of this process, yet was keen to understand individual experience, past and future (Nguyen, 1981, p. 53). Nguyen's work is a work of art by a student who was still experimenting with different aesthetic styles and was shaping his artistic personality. Not every image carries a strong message. But as one narrative, orchestrated through the sequence of pages in a photographic book, *Coal underneath Magdeborn* encapsulates a process of environmental transformation caused by human agency, highlighting the sheer violence of the devastation, the losses it entailed and propositions for another future.

Nguyen's linen-covered book with no text, apart from the title and half-title, incorporates varying image formats. The flow of the black-and-white images is punctuated with the few contrasting colour images of landscapes and still-lives. The image formats within the book—landscape format, fitting the page as single or double-spaced images or full-page bleed—create a sense of cohesion between image format and content. The image narrative flows dynamically from setting the scene of the village within its environs and the proximity of the coal mine to the liveliness and normality of regular village life. The narrative sequence of images is clustered around a series of common themes, creating a rhythmic quality.

An image, in which the question 'Wie stelle ich mir das Jahr 2000 vor?' [How do I imagine the year 2000 to be?] is written in chalk on a school blackboard, starts to propel the viewer from the present into a possible future (Fig. 7.1.). A question is starting to emerge from the book's narrative. The image halts the ease of rhythm

88. Reiner Krah, interview with the author, 22 March 2015.

and marks a turning point towards the final third of the book's narrative. It is followed by scenes of school life and children playing outdoors. Some are lively, others bored and pensive. Children playing at war. A child placed at the table doing homework. Children gathering around their teacher on his motorbike. These photographs are followed by the first removals, people shaking hands to make their farewells. Intimate images of elderly couples sitting in their kitchen or living room to say good-bye to the spaces that witnessed their lives. Heavy, palpable dread fills rooms (Fig. 6.11.).



Figure 6.11. Nguyen the Thuc [n. d.] *Kohle unter Magdeborn* [Coal underneath Magdeborn]. [Photograph of open book. One black-and-white photograph on right hand page. No text. No pagination] Archive of the HGB Leipzig, Germany.

At the 2014 *Freundschaftsantiqua* exhibition, the work of Nguyen and other students was presented for the first time to a general public.⁸⁹ Though displayed within a contemporary art gallery, the exhibition was not conceived solely as an art project. The curators were keen to explore exhibition approaches to presenting photography and to find solutions for displaying these works without deadening them.⁹⁰ Conceptually, they created a number of levels and diverse spaces within which visitors could explore the exhibits. Photography, book design and typography have worked very closely together at the Academy of Fine Arts and photographs have very much been seen within the book, not as single wall-hung objects. The majority of the objects in the exhibition were books or were taken out of the book

89. Julia Blume, interview with the author, 16 April 2015.

90. Julia Blume, interview with the author, 16 April 2015.

format. The exhibition design replicated the viewing experience offered through the intimacy of the book format. Each original photography book was shown placed upright on a shelf; on a separate, deeper shelf below was a reproduction that visitors could leaf through (Fig. 6.12.). Visitor interactions with the exhibits evoked the atmosphere of a degree-show, minimising the distance between the viewer and the work (Ackermann, 2015). Some images were enlarged and shown on the wall alongside the books. This approach references the diploma exhibition the students used to have. For the duration of the exam assessment, they would put up a small number of larger size prints. In the case of *Coal underneath Magdeborn* the curators selected 18 images from the book, which they displayed in a new order and in a gridded block of three by six unframed photographs simply pinned to the grey wall (Fig. 6.13.). The images were printed to identical size and were larger than the originals. The students at the time of their diploma examination did not have a public exhibition as such. Works were put up for a short duration within the space of their diploma discussion.



Figure 6.12. *Freundschaftsantiqua* (2014). Installation detail. Nguyen the Thuc *Kohle unter Magdeborn* in the centre. Galerie für Zeitgenössische Kunst Leipzig. [Press photograph].



Figure 6.13. *Freundschaftsantiqua* (2014). Installation detail. Nguyen the Thuc [1976]. *Kohle unter Magdeborn*. [Photographic book with black-and-white photographs and colour photographs. No text.] and Nguyen the Thuc *Kohle unter Magdeborn*. 18 black-and-white photographs. Dimensions 20 x 30 cm] Galerie für Zeitgenössische Kunst Leipzig. [Press photograph].

This type of display structure—an openly accessible reproduction of the book for use, the original book displayed at the selected page, reproductions of single images—was accompanied by a wall text of the student’s name and country of origin, date and title of the work. The principle was repeated for other similar students’ book works. The display created an informative, legible and direct experience of the works without artificially heightening their merit or meaning, since the diploma works themselves are of varying artistic quality and particularly of varying maturity. Sometimes the works became ending points to an exploration in photography or were indeed the beginnings of a life’s career in photography or maybe a different artistic medium. More students’ works, including their books and dissertations, along with archival materials about the teaching at the academy, could be viewed through a glass window from outside the exhibition space. This arrangement created a transparent transition into a broader historical context (Fig. 6.14.).



Figure 6.14.
Freundschaftsantiqua
(2014). Archive installation
detail. Photograph
including Nguyen the Thuc
on the right. Galerie für
Zeitgenössische Kunst
Leipzig. [Press
photograph].

The *Freundschaftsantiqua* curators were keen to make links to the current political and cultural situation in order to bring in ‘jetzt-Zeit’ [now-time].⁹¹ This curatorial line of thinking spoke to the different time frames through which the works can be considered. Relating the present to the past through environmental change was an obvious and readable photographic subject for Leipzig exhibition audiences. Eisler’s photographic series *Uferlos* [Borderless] was spatially placed in dialogue with Nguyen’s work. In the exhibition methodology is informed by

91. Julia Blume, interview with the author, 16 April 2015.

montage (Bishop, 2015) in which bodies of work, those of Eisler and Nguyen, comment upon each other. Together they describe societal complexity—the individual’s life intertwined with the lives of others, with the authority of the state and with economic changes. But the individual also shines. Nguyen wears the winner’s laurel wreath (Figs 6.14. and 6.19.), two girls pose confidently for the photographer and a boy dares himself to cross the space of the school yard high up above the others in an act of aerial play.

The final selection of the photographs was made in the exhibition space itself, as the curators created spatial correspondences with the other works, setting up dialogues and visual axes. They made their selection in consultation with Eisler, though in retrospect she herself was not entirely convinced by the placing of the works. While *Uferlos* [Borderless] and *Arbeitslos* [Unemployed] were hung across the room opposite *Coal underneath Magdeborn* on a large grey wall, the other series *Heimatlos* [Homeless] with accompanying labels was hung on the other side of the wall, out of immediate relational view (Figs. 6.15.–6.19.). As part of the commissioning process Eisler had looked at the work in the archive, but only loosely, and was guided by her own interests and instincts when she started to explore the areas of the Störmthaler Lake.⁹²

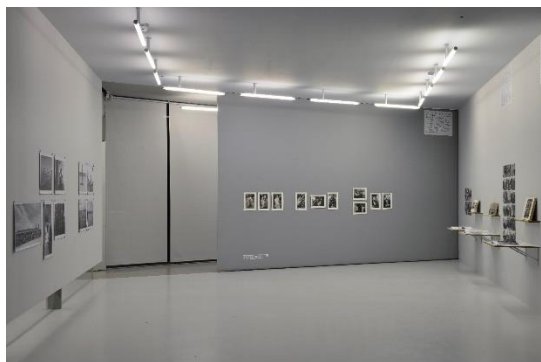


Figure 6.15. *Freundschaftsantiqua* (2014). Installation detail. Christiane Eisler *Uferlos* (2013–2014) and *Arbeitslos* (2013–2015) (left wall). Nguyen the Thuc *Kohle unter Magdeborn* (right wall) Galerie für Zeitgenössische Kunst Leipzig. [Press photograph].



Figure 6.16. *Freundschaftsantiqua* (2014). Installation detail, *Uferlos*. Christiane Eisler *Uferlos* (2013–2014). [Four colour photographs, each 50 x 70 cm] Galerie für Zeitgenössische Kunst Leipzig. [Press photograph].

92. Christiane Eisler, interview with the author, 14 April 2015.



Figure 6.17. *Freundschaftsantiqua* (2014). Installation detail. Christiane Eisler *Arbeitslos* (2013–2015). Four black-and-white photographs, each 50 x 70 cm. One panorama black-and-white photograph (left) *Uferlos* (2013–2014) [right] Galerie für Zeitgenössische Kunst Leipzig. [Press photograph].



Figure 6.18. *Freundschaftsantiqua* (2014). Installation detail. Christiane Eisler *Heimatlos* (2012) [left]. Galerie für Zeitgenössische Kunst Leipzig. [Press photograph].



Figure 6.19. Christiane Eisler *Heimatlos* (2012). [Three colour photographs. Two photographs 50 x 70 cm, one photograph 70 x 50 cm]. *Freundschaftsantiqua* (2014) Installation detail. Galerie für Zeitgenössische Kunst Leipzig. [Press photograph].

The exhibition spaces thus allowed for comparative viewing of the works, while the installation afforded an aesthetic representation that opened up a space for memory and environmental study. Both Eisler's and Nguyen's compositions use images made 'on the sly' when immersed in situations of children playing and street

photography (Fig. 6.19.). The strong—almost forbidding—geometric forms observed by Eisler in *Uferlos* [Borderless] are echoes of the organized composition of some of Nguyen’s images. (Fig. 6.16.) Eisler’s social gaze [sozialer Blick]⁹³ was germane to the exhibition project, since the curators hoped to solicit audience reactions and responses to the past. In connecting Eisler’s and Nguyen’s works, the exhibition installation could address the physical and economic transformation of a regional landscape, which would be known to local audiences. In addition to the exhibition itself, a contributing art historian-researcher, Tobias Haupt, took great interest in the public history of Magdeborn (2014a, pp. 41–42).⁹⁴ Haupt met a number of the village’s former inhabitants to gather oral histories in relation to the photographs, to gauge their enthusiasm for Nguyen’s project and to understand how Nguyen worked. The exhibition project thus enabled the emotional and mnemonic re-performance of the landscape by eliciting stories through the use of the historic images.

The exhibition opening on 31 January 2014 was attended, among others, by a selection of the Academy of Fine Arts graduate artists, people who knew them at the time, students from other research areas and former inhabitants of Magdeborn. Blume recalled that the event, more of a ‘Wissensausstellung’ [knowledge exhibition],⁹⁵ brought new audiences into the gallery owing to the public interest in rediscovering Leipzig’s history. Through the exhibition, Blume and Stecker created a different, but shared historical perspective that made room for new social relations. *Freundschaftsantiqua* was the most popular exhibition at the Gallery for Contemporary Art Leipzig in 2014. Blume stated that the media partner MDR Kunstredakteur felt it was the most important of the jubilee series’ exhibitions as it was asking new questions. This was particularly important as the historical canon of the academy had become dominated by some very well-known artists.⁹⁶ *Freundschaftsantiqua* probed a different art and cultural-historical scenario. Both

93. Eisler enjoyed a real friendship with Mongolian artist Enchbat Roozongijn (Julia Blume, interview with the author, 16 April 2015; Christiane Eisler, interview with the author, 14 April 2015). It was likely that they influenced each other. Roozongijn’s portraits of workers, people in pubs and his street photography have a raw and sensuous energy and were also shown in the exhibition.

94. I would like to thank Tobias Haupt for his invaluable help and generosity towards my research.

95. Julia Blume, interview with the author, 16 April 2015.

96. Julia Blume, interview with the author, 16 April 2015.

Eisler's and Thuc's narrative social-documentary photographic works condense a nexus of social dissolution, loss of identity and environmental destruction. The exhibition not only addressed a history of the Academy of Fine Arts that had been side-lined through the choice of subject area; it also created an engagement with new audiences on environmental change in the Leipzig region as envisaged through the example of Magdeborn.

Eisler's engagement with Nguyen's work was conceived less as source material for re-photography than as an inspiration and historicized context for reading an environment that has irretrievably been changed. Only the edges of the former mine leave a discernible trace. The making of a photographic encounter between Eisler and Nguyen was the work of curators who connected their methodologies through the spatiality of the installation. In the context of the exhibition, Nguyen's work was historicized through an imaginary journey by retracing steps within a landscape undergoing transformation. The works by Eisler thus prompted a re-performance of the landscape through her walking the former mining area with Nguyen's images in mind, combined with her own experience of looking. Her photographs are not testimony of a forensic process of retrieval, but one of comment on the flux of societal change. Eisler's works expand on what Nguyen could only hint at due to the limitation of his time spent in the GDR. Eisler continues to seek out the margins of society: social groups on the periphery of Leipzig's society, the edges of the leisure landscape made to look forbidding and the fraying architecture of labour.

6.3. Landscape of the Leipzig region in the German Democratic Republic

The *Freundschaftsantiqua* exhibition, though it set out to address a question about internationalism in the GDR, actually opened up another question concerning processes of environmental transformation in the Leipzig region through coal mining as portrayed through the visual narratives of Nguyen and Eisler. To gain a better understanding of the landscape transformations around Leipzig, I not only visited the region to see it for myself, but also looked at other photographers' works of the region. At the time of the reunification of East and West Germany in 1990, this environment was one of the most polluted areas of Europe. West German

photojournalist Hoepker, who from the early seventies was accredited in the GDR to report on politics and everyday life, writes (2011):

The village of Espenhain near Leipzig was long considered the dirtiest place in the GDR. The brown-coal fired power plant blew clouds of sulphur, soot and poisonous phenol into the air. In 1998 after the power plant had been shut down, the sun shone once again upon the region. (p. 213)

With a focus on the environs of Leipzig and coal mining, the book *Leipziger Landschaften* [Leipzig's landscapes] (Guth, Sikora, & Vogel, 1987) narrates the history of landscape through the agency of coal in successive chapters on 'Wetland', 'Island' and 'Coal'. This book, produced locally in the final years of the GDR, describes through photography and prose the significance of coal for the landscape and its inhabitants:

The land of radical change, that of coal. . . . In the mining landscape, the separation between the past and the present is stark and painful: whole villages disappear and are replaced by open-cast mining; Slag heaps are turned into forests, remaining ground holes turn into lakes. An hour zero comes over and over again, with which a completely new, completely different biography of the landscape begins. . . . Schools, churches. And fates, family gossip, first love affairs, the mysterious hiding places of uncountable children's games are buried in the demolition rubble. This is also part of the Leipzig landscape. (p. 140)⁹⁷

This account encapsulates how landscapes are spaces with biographies in themselves and onto which human lives, emotions and memory are mapped. It sketches the Leipzig landscape characterized by industrial transformation, the consequential dramatic changes in dwelling and its effects on the experience of self. In another publication, *Zeit–Landschaften. Fotografien aus dem Leipziger Südraum 1984–1998* [Time-Landscapes. Photographs from Leipzig South 1984–1998] (1998),

97. Original text: das Land des Umbruchs, das der Kohle. . . . In der *Bergbaulandschaft* ist die Trennung zwischen Vergangenheit und Gegenwart scharf und schmerzhaft: Ganze Ortschaften verschwinden, und an ihre Stelle treten Tagebaue; Abraumhalden werden zu Wäldern, Restlöcher verwandeln sich in Seen. Hier gibt es immer wieder eine Stunde Null, mit der eine ganz neue, völlig andere Biografie der Landschaft beginnt. . . . Schulen, Kirchen. Und Schicksale, Familientratsch, erste Liebeleien, die geheimnisvollen Verstecke unzähliger Kinderspiele liegen im Abbruchschutt begraben. Auch das gehört zur Leipziger Landschaft.

Leipzig-based photographer and Academy of Fine Arts graduate Marion Wenzel created a comparative study. Her photographs, including juxtaposed images of the same site at different times, represent environmental changes in the region's mining landscapes. Hers are images of a landscape abandoned. The photographic project *VorOrt* (Borzutzki, Müller, & Sachse, 1997), and later *East* (2001), monitored the radical transformations in the society and the economy and the dismantling of the industrial landscape. The project, which employed seventeen photographers, all originally from East Germany, started in 1993 and continued for eight years to assemble 'archives of reality' (Bertho, 2009, para 26). This work was sponsored by the newly privatized Eastern German company Verbundnetz Gas, an importer and distributor of natural gas, to document changes in the territory of the former German Democratic Republic with emphasis on the Leipzig area. Through the project a variety of different photographic series, shown at exhibitions such as at the World Gas Conference in Milan and in Copenhagen and published in book format, were commissioned. Many of the photographers in this project had links to or were graduates from the Academy of Fine Arts Leipzig (Bertho, 2009).

The loss of the rural life of Magdeborn, away from the 'magisterial, socialist' new-built environment (Schierz, 2009a, p. 14), was treated like a personal and public process of memory loss and dying. The village became synonymous with the loss of homeland, forced removal and exploitation of the natural environment: Magdeborn had a life and a death (Riedel & Schneider, 2012, p. 14). The documentary film *Erinnerung an eine Landschaft—Für Manuela* [Memory of a Landscape—For Manuela] (1983) by Kurt Tetzlaff is also such a testimonial.

These various photographic series and works allow me to read the environment itself as an archive: from the atmosphere and its dust, to the anthropogenic interventions that moved volumes of earth, to the geological strata holding traces of flora and fauna, to the hydrographic regeneration and the people inhabiting this place. The photographic archive and the environmental archive work in different ways across temporal and spatial scales to conserve and to obscure objects, to hold memories and processes. Landscapes are indeed dynamic spaces of both continual natural evolution and human-made transformations. These human-societal transformation processes take different forms, such as agriculture, industrial use or

built infrastructures. Natural evolution of landscapes occurs through biological and geological processes. These different time frames and differing human interventions into the landscape offer context for Eisler's and Nguyen's works. Considered together, they provide two distinctive temporal insights into an ecocatastrophe and the social, emotional and ecological violence it entailed—as well as of the landscape's regeneration and re-use. Considered as single bodies of work and together, the photographs embody different time frames found simultaneously within the landscape. The artists' works draw out and release these processes of change.

Nguyen (1978) had not originally intended to study photography, but was delegated to do so by his country. His state had nominated him in a process typical of state-led cultural exchange programmes, designed to develop its leadership skills (Blume & Stecker, 2014a, pp. 83–84). Learning to become a photographer in the GDR without any prior professional experience, Nguyen found European photography to be different from the photography he had known in Vietnam, at a time when it had become a journalistic practice primarily used in the context of ideological and military warfare. Reflecting on his development in photographic studies, he writes of the societal responsibility of the photographer to speak truthfully (1978):

Photography is a societal activity, that is why it is important for a photographer to have the ability to comprehend, analyse and summarize in depth difficult social problems. He should be courageous to speak the truth clearly . . . that is how I think and this is how I photograph. (p. 12)⁹⁸

Nguyen considers themes of societal responsibility and truthfulness in his portrayal of the environmental transformations. The human shaping of a landscape can find its adequate representation in the work of the photographer, or the photographer can critique such interventions. Though Nguyen embraces the

98. Original text: Das Fotografieren ist eine gesellschaftliche Tätigkeit, deshalb ist es wichtig, für einen Fotografen, daß er diese Fähigkeit hat, die schwierigen gesellschaftlichen Probleme tief zu begreifen, zu analysieren und zusammenzufassen. Er sollte mutig sein, direkt die Wahrheit zu nennen . . . so denke ich und fotografiere auch so.

human-made and the natural in the landscape, his perception of systemic pollution is ambiguous. He writes in his diploma dissertation:

The photographer can contribute to shape our environment aesthetically. He can describe the beauty, the maturity of the new landscape, but can also show it critically. In the capitalist countries, for example, he can condemn the inhumane environmental pollution of the corporations. (p. 13)⁹⁹

These accounts from Nguyen himself throw light on his choice of photographic subject. To him, photography was most effective in its representation of environments in different stages of human intervention. These environments can become new human-made landscapes, or they can become despoiled still further. Nguyen's reflections on photography and environmental pollution imply that his own work *Coal underneath Magdeborn* must itself be situated within the very rift between socialist ideals and socialist reality. His project, considered by itself, offers a reading of anthropogenic landscape transformation and environmental change—a story of change told before in other places and in different times. Nguyen's work, however, not only tells a story unique to this place, it is also uniquely told through its cultural perspective and social-documentary photographic method. In referencing historic documentary images of French colonization of Vietnam in the mid-twentieth century and the American war in Vietnam, Nguyen framed his work through two main conceptual approaches. Firstly, he fused critique of imperialism, the representation of history [Geschichtsbilder] and the creation of a new societal—socialist—order (Figs 6.20.–6.22.). Secondly, he presented landscape not just as a foil to human activity, but as an integral part of societal and human life. The sequence of historical reference images from his home country includes a North-Vietnamese farmer working the field next to a bomb (Fig. 6.21). Elsewhere, he alludes to landscape regeneration in his image of an Eastern German landscape. The photograph, entitled 'Erste Landschaft' [First landscape], poetically represents a line

99. Original text: Der Fotograf kann mitwirken, unsere Umwelt schön zu gestalten. Er kann die Schönheit, die Reife der neuen Landschaft beschreiben, kann sie aber auch kritisch bildhaft zeigen. In den kapitalistischen Ländern kann er z. B die unmenschliche Umweltverschmutzung von den Konzernen verurteilen.

of tender young trees in winter, planted on the shore of a lake, in what appears to be a former mining area (Nguyen, 1978, n. p.). As does Eisler when she re-performs the landscape. An image in the series *Uferlos* [Borderless] shows, like Nguyen's, young trees bordering the human-made lake that now floods the former mining site of BKK Espenhain—another 'first' landscape whose beginnings are within living human memory (Fig. 6.16.).

In his reflections on photographic references, subject choice and methods, Nguyen sets himself up as a critical-historical chronicler. The Magdeborn project became a study of the relationship between individuals and society seen through landscape transformations in agriculture, the living infrastructure of a rural village and the encroachment of industry. Nguyen's choice of subject also informed his artistic method. As photographer, he assumed a social role within the fabric of a community, out of which the documentary, photographic record emerged. He portrayed a community living within an environment, one that perhaps unbeknown to him was about to become toxic and polluted. The devastation of Magdeborn went hand in hand with the dissolution of its social community, and the demise of the political system during which the photographic record was taken. Nguyen himself returned to Vietnam.

Figure 6.20. Nguyen the Thuc, 'Meine bisherige Entwicklung in der Fotografie' [My development in photography so far] (Diploma diss., Hochschule für Grafik und Buchkunst Leipzig, 1978) [Photograph of open document. Three black-and-white photographs per page on the right. Captions. No pagination. Page following page 3] Archive of the HGB Leipzig, Germany. Photograph: Bergit Arends.

[Captions transcript]

Diese Fotos entstanden vor dem Sieg der vietnamesischen Revolution. Das Volk litt unter der unmenschlichen Unterdrückung der französischen Kolonialisten.

[These photographs were made before the victory of the Vietnamese revolution. The people suffered from the inhumane oppression by the French colonialists.]

1) Obdachloser [Homeless person]

2) Ohne Titel [Untitled]

3) Patrioten im Gefängnis [Patriots in prison]

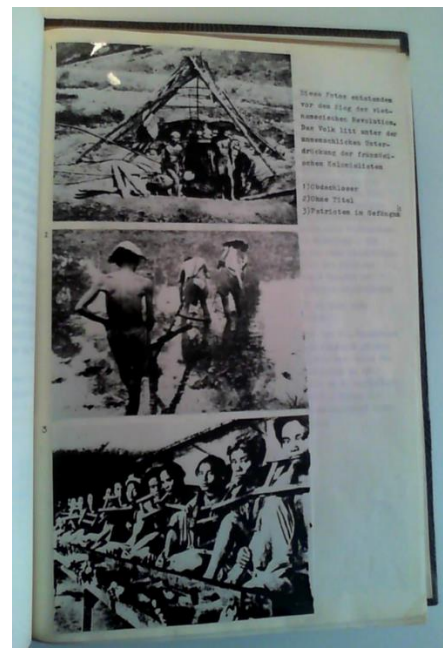


Figure 6.21. Nguyen the Thuc, 'Meine bisherige Entwicklung in der Fotografie' [My development in photography so far] (Diploma diss., Hochschule für Grafik und Buchkunst Leipzig, 1978) [Photograph of open document. Three black-and-white photographs per page on the right. Captions. No pagination. Page following page 3 and two unpaginated pages] Archive of the HGB Leipzig, Germany. Photograph: Bergit Arends.

[Captions transcript]

- 7) Trotz der höchsten Gefahr der Zeit der Bomber [legibility poor] wird die Ernte eingebracht (im Zerstörungskrieg der USA im Norden Vietnams) [The harvest is brought in, despite the high risk of bombs (war of destruction by the USA in the North of Vietnam)]
 8) Ohne Titel [Untitled]
 9) Das Mädchen und der Luft-pirat [The girl and the air-pirate].

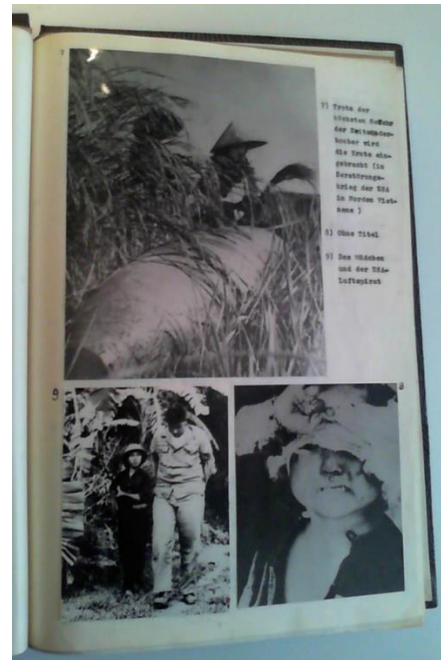
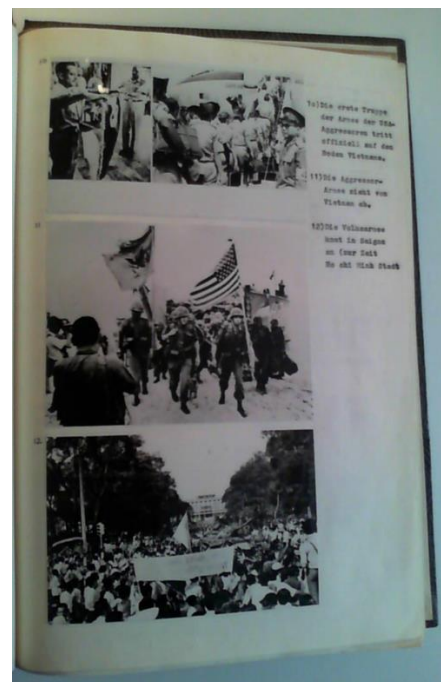


Figure 6.22. Nguyen the Thuc, 'Meine bisherige Entwicklung in der Fotografie' [My development in photography so far] (Diploma diss., Hochschule für Grafik und Buchkunst Leipzig, 1978) [Photograph of open document. Three black-and-white photographs per page on the right. Captions. No pagination. Page following page 3] Archive of the HGB Leipzig, Germany. Photograph: Bergit Arends.

[Captions transcript]

- 10) Die erste Truppe der Armee der USA-Agressoren tritt offiziell auf den Boden Vietnams. [The first army troop of the USA-aggressor officially sets foot on Vietnamese soil.]
 11) Die Agressor-Armee zieht von Vietnam ab. [The aggressor army withdraws from Vietnam.]
 12) Die Volksarmee kommt in Saigon an (zur Zeit Ho chi Minh Stadt). [The people's army arrives from Saigon (currently Ho chi Minh City)].



6.4. Photography at the Hochschule für Grafik und Buchkunst Leipzig in the 1970s

The Leipzig Academy in which Nugyen studied promoted the role of photography as a social practice with an obligation 'to speak the truth clearly'. In this section, I draw out the wider social and political context of the GDR and the artists' working methodologies in the context of the teaching at the Leipzig academy. The Academy

of Fine Arts Leipzig is one of the oldest academies of arts in Germany. It was founded in 1764 as the 'Zeichnungs-, Malerey und Architektur-Academie' with an explicit humanist orientation, which has remained a guiding principle and lent a measure of self-awareness throughout the ever-changing history of the academy. Since 1950 the school has born its present name 'Hochschule für Grafik und Buchkunst Leipzig' (Pachnike, 1989, pp. 16–18). The academy now offers an education for painters, graphic and book designers, photographers and media artists. The teaching there continues to enjoy an international reputation and its teachers are known for their artistic work.

From the late 1950s onwards photographic production was under the control of the state. However, early on in the history of the GDR, Leipzig photographers registered their opposition to the dictates of government propaganda. The Academy's photography department became a laboratory for exploring the inconsistencies and flaws in society. Its particular style of 'social documentary' was committed to the search for new representations of daily life. Under the leadership of Director Bernhard Heisig from 1976 to 1987, the art school developed its international reputation. Its photography department, the only programme of its kind in the socialist regime, became the centre of fine-art photography in East Germany (Bertho, 2009, para. 19–21). Retrospectively, the survey exhibition *Shuttered Society* (2012–2013) showed the heterogeneity of photography in the GDR and how individual attitudes towards the medium and role of photography in society prevailed over state-approved styles and movements (Bertho, 2015).

In the 1970s, when Nguyen was a student at the Academy of Fine Arts, the pedagogic approach in the photography department encouraged a fundamental questioning of reality through the medium of photography. The human subject was set in relation to her/his societal and natural environment. Photographic forms embraced the development of complex techniques such as reportage, essay, documentary and comparative photography, or multi-media forms such as photo-montage, image and sound montage, or photographic spatial installations. Helfried Strauß taught the students to develop journalistic, social-documentary photography (Schierz, 2009b). The hierarchy was relatively flat: teachers considered students as

partners (Pachnike & Liebich, 1989, p. 54) and sometimes collaborated on projects.¹⁰⁰

From 1969 onwards new pedagogic approaches towards a socialist-realist art were explicitly written into the programme of the Academy. The teaching of photography was underpinned by the foundations of social science research.¹⁰¹ Specifically, the theoretical framework of Marxism-Leninism was used to offer philosophical and political insights and to help students think through and analyse societal issues and questions. Moreover, historical contexts were opened up through cultural theory, art history and aesthetics, not just to gain an in-depth understanding of history, but to become cognizant of one's own responsibility within society. With foundations in dialectical and historical materialism, political economy and scientific socialism, education at the academy was consciously ideologically inflected towards future societal and professional practice (Pachnike, 1989, pp. 21–25).

Studies at the academy took five years: two years of foundational studies, concluding with an intermediate exam, and three years specialized study in the chosen artistic medium. To obtain a diploma in the final year, the student had to pass an exam in the fourth year and was then admitted into the studies of the fifth year to produce a diploma project and accompanying thesis (practice and theory). This must have been the educational structure for Nguyen, who studied photography for six years. Admission criteria for the Academy of Fine Arts demanded not just an above average creative talent, but also societal activity at school or work. Applicants for a place on the photography programme were usually required to demonstrate knowledge and skills in photographic techniques. However, Nguyen had no photographic training though he had trained as a pilot in the Soviet Union and was one of the more mature students.¹⁰² Those completing their studies in photography were encouraged to take up careers in journalism, publishing, advertising or GDR TV, state-owned industries or as free-lance members of the GDR's Journalists' Association (Verband der Journalistik der DDR) or the

100. Christiane Eisler, interview with the author, 14 April 2015.

101. The theoretical teaching curriculum was set up by Jochen Kawig and Erwin Koenig; the latter was mentor and mentioned as such by name on the title page of Nguyen's diploma dissertation.

102. Helfried Strauß, interview with the author, 7 April 2015.

GDR's Visual Artists' Association (Verband Bildender Künstler der DDR) (Pachnike, 1979). Nguyen's former teacher Strauß assumes that Nguyen continues to work in Vietnam as a photographic journalist; at least he did so when they were last in contact in the 1990s.¹⁰³

The intention of the *Freundschaftsantiqua* exhibition was to make visible the contribution of non-GDR students to photography. The umbrella term 'Leipzig School', used from the 1960s onwards, reflected the international artistic reputation of the academy with regard to painting. This however overshadowed its role in teaching social-documentary photographic practices (Schierz, 2009a). Blume and Stecker's exhibition thus challenged the dominance of the practice of painting over photographic practice in the academy's reputation and showed the academy's teaching to be more complex by uncovering these student projects by non-GDR citizens. Yet already in the jubilee exhibition celebrating 225 years of the Academy of Fine Arts, held in April to May 1989—only a few months before the East German borders opened—teachers Klaus Liebich and Peter Pachnicke (1989, p. 53) pointed out the creative and intellectual contributions of students from Bulgaria, Poland, Hungary, Vietnam, Korea, USSR, Lebanon, Ghana and the Congo, who studied at the academy since the 1970s. The teachers underlined the influence these students had on pedagogy at the academy through their inputs, propositions and expectations.

While a mood of optimism towards a better future prevailed in the early 1970s, hopes for the achievement of individual happiness and social progress through technological innovation and political mobilization appeared naïve at the end of that decade (Pachnike & Liebich, 1989, pp. 54–55). Nguyen's photographic project *Coal underneath Magdeborn* originated in an intellectual climate that gave space to self-confidence and free-spirited subjectivity. In reflecting on his working method, Nguyen is explicit about wanting to capture the inner emotional life of individuals, while being aware of his own cultural background. Such explicit acknowledgements of subjectivity, his own and that of others, in principle contravened state expectations of the individual within a socialist system. Following a spell of liberalization in the GDR, hopes for a more humane society were dashed by the end

103. Helfried Strauß, interview with the author, 7 April 2015.

of that decade. In November 1976, dissident singer-songwriter Wolf Biermann was expelled from the GDR. The event marked a decisive cultural-political change, bringing to an end the period of optimism in the arts (Bauer, 1988, p. 224). At the same time, environmental destruction through 'science and technology' (Pachnik & Liebich, 1989, p. 55) had proceeded apace within the GDR. The final years of the 1970s drifted towards nuclear re-armament in East and West Germany, triggering the renewal of a European-wide anti-nuclear movement. Leading up to the early 1980s, GDR photographers' imaginings about the world's future had turned apocalyptic, a mood that deepened when martial law was declared in Poland (1981–1983) and the GDR's peace and ecological movements were rigorously suppressed (Saab, 2001, p. 10).

The political privileging of science and technology that had marked the period of post-war development in both the capitalist and socialist worlds came increasingly under pressure during the 1960s, as manifested for example in protests against the Vietnam war and critiques in the West of the close collaboration between scientists, the state and the military. Technocratic views of the environment were challenged through popular movements against nuclear testing, the use of pesticides and deforestation. Satellite photography, a characteristic Cold War technology, produced images of Earth that made evident the interdependence and fragility of the planet's ecosystems. Cold War rivalry, with its risks to humankind, and the civic protests against environmental destruction, were partly fostered by those images of a global environment (McNeill & Unger, 2010, pp. 16–17).

Nguyen's photographic work was clearly influenced by the powerful imagery of the Vietnam war, which he referenced in his student dissertation (Nguyen, 1978, n. p.) (Figs 6.20.–6.22.). He was not interested in a distant satellite view of Vietnam that would show ravaged villages, fields and forests and the disturbed surface of the Earth from which humans would appear as absent. Instead Nguyen chose images that look closely at human presence in the landscape: the farmer working around the unexploded bomb or a group of men dwelling in a hole in the ground.

The project of photographing Madgeborn people in their everyday and religious lives and at a time when the village was forced to yield to the power of the brown-

coal production infrastructure was a 'controversial topic at both local and political levels in the GDR, as it was officially forbidden to speak of the problems associated with environmental interventions of this nature' (Blume & Stecker, 2014a, p. 84). In the GDR in the 1970s, emotional truth was fragile as surveillance through the state and through individuals was pervasive and photography was used as an instrument of power (Hartewig, 2004). Indeed, in conducting research for this chapter, I felt the need to reassure myself that the artist had not been acting as a spy on behalf of the state and checked the Stasi-archive [state security archive]. I was relieved to find that, according to the current availability of state security documents, he was not (Weiße, 2016).

Composed during the 1970s decade of global change and state crisis, *Coal underneath Magdeborn* captures a range of individual moments of emotion, reflecting happiness, distress and doubt and also, or so it appears, possibly a cautious optimism as expressed in the book's final sets of images (Fig. 6.23.). Radkau (1996) analyses the technological and societal phenomena of increasing energy uses and prosperity from the late-nineteenth century onwards. The correlation between growing prosperity and the steep rise in energy production and use was thrown into doubt, however, in the 1970s. The suggestive idea of technological progress, energy consumption and human well-being started to become disentangled from economic superiority and expectations of happiness. In 1977, West German authority on nuclear science Carl Friedrich von Weizsäcker proposed that "'we would all be happier" if we altered our culture in such a way that "we could make do with less energy. But we won't do it; for we want to be unhappy" he concluded' (quoted in Radkau, 1996, p. 17).

The Leipzig region was a powerhouse of energy production for regional and national supply. Increasing the size of the power-generating infrastructure was a technocratic solution and part of the state's economic strategy. The renaissance of brown coal as the main energy resource in the GDR started after the 'oil price shock', i.e. the drastic rise in raw oil prices, in 1973. During the oil crisis the import costs of oil and related products increased about five-fold in 1974. This development continued between 1975 and 1980. The strategy of the Socialist Unity Party of Germany [Sozialistische Einheitspartei Deutschlands (SED)] leadership was

to replace oil with brown coal. The central committee of the SED set the coal programmes for the period 1974–1990 at the 1975 Coal and Energy conference. Consequentially brown-coal mining areas were expanded, resulting in devastation, lowering of ground water levels, changes of geomorphology, increasing environmental pollution of air and water as well as waste deposit areas (Hochschule Neubrandenburg, 2016, pp. 14–16). However, energy, or the lack thereof, both negatively affected everyday life. Despite the geographical closeness of coal as energy source for electricity, the authors of the regional publication on *Leipzig's landscapes* write: 'Memory of the change of the year 1978/79. Leipzig, the city of energy, was without electricity on New Year's Eve and New Year's Day, its whole well-tempered daily routine in disorder' (Guth et al., 1987, p. 140).¹⁰⁴ The authors describe an event in the penultimate decade of the history of the GDR. The 1980s became a decade of social and political unrest, partly triggered by environmental issues, and culminating in the Peaceful Revolution and the end of the GDR in 1989/1990.



Figure 6.23. Nguyen the Thuc [n. d.] *Kohle unter Magdeborn* [Coal underneath Magdeborn]. [Photograph of open book. Black-and-white photograph on the left page. No text. No pagination]. Archive of the HGB Leipzig, Germany.

Seen from this perspective, Nguyen's photographic book on Magdeborn describes individuals within a microcosm of energy production, exposed to the

104. Original text: Erinnerung an den Jahreswechsel 1978/79. Leipzig, die Stadt der Energie, war Silvester und Neujahr ohne Strom, ihr ganzer wohltemperierter Tagesablauf durcheinandergeraten.

vagaries of world markets and the GDR's strategy for local resource exploitation. The presence of brown coal pervades the narrative, every image works within an 'ensemble' of images (Neumann, 1974) in which the impending loss of village life becomes a cumulative, visual and imaginary experience. The two final double-page spreads of the book are in conceptual juxtaposition. The penultimate two images show the inside of a modern flat (Fig. 6.23.). Three children and a woman are lounging in the living room, sitting sedately—maybe bored?—on the sofa and arm chairs, transfixed by a television screen sunk into the *Schrankwand* [wall unit], a typical 1970s piece of furniture that covers the entire wall. Nguyen in his quiet presence is standing, photographing down onto the seated, now former, Magdeborners. The strong diagonal composition directs the viewer to the TV screen, which can only be seen from an oblique angle. The image on the right is taken from inside the flat and is a view from the balcony of the probably pre-fabricated building. Three children are gazing out and across the central area of the estate, their horizon limited by the building opposite. Another strong diagonal dominates the image composition, at its centre the sand heaps of the unfinished construction works. It feels almost tiring to study the interior scene, the action-packed energy of some of the village children at play outdoors sapped away. The image reminds me of the words by East German dramatist Heiner Müller (1929–1995), who was not beguiled by the modernity of Leipzig's suburban estate. In 1983 he wrote in *Verkommenes Ufer Medeamaterial Landschaft mit Argonauten* [Waterfront wasteland Medea material landscape with argonauts, (trans. 1995)]:

My walk through the suburbs
 In between ruins and rubble
 THE NEW is growing
 Fuck cubicles with central heating
 The television screen spews world into the room
 Wear and Tear is calculated for (p.55)¹⁰⁵

105. Original text:
 Mein Gang durch die Vorstadt Ich
 Zwischen Trümmern und Bauschutt wächst
 DAS NEUE Fickzellen mit Fernheizung
 Der Bildschirm speit Welt in die Stube
 Verschleiß ist eingeplant (Müller, 1987 [1983]), 99)

The cautious optimism that might have been felt by the move to an apartment with all modern conveniences seems betrayed by a sense of isolation, bureaucratic regime and passivity. Soon after Müller expressed this anger towards the socialist planned economy in the early years of the 1980s, former Magdeborners would have had to settle into their new homes. These images from the inside of the estate are followed by the double-page and final photograph of the ‘moonscape’ of vast brown coal heaps extending towards the horizon (Nguyen, 1981, p. 52) (Fig. 6.24).

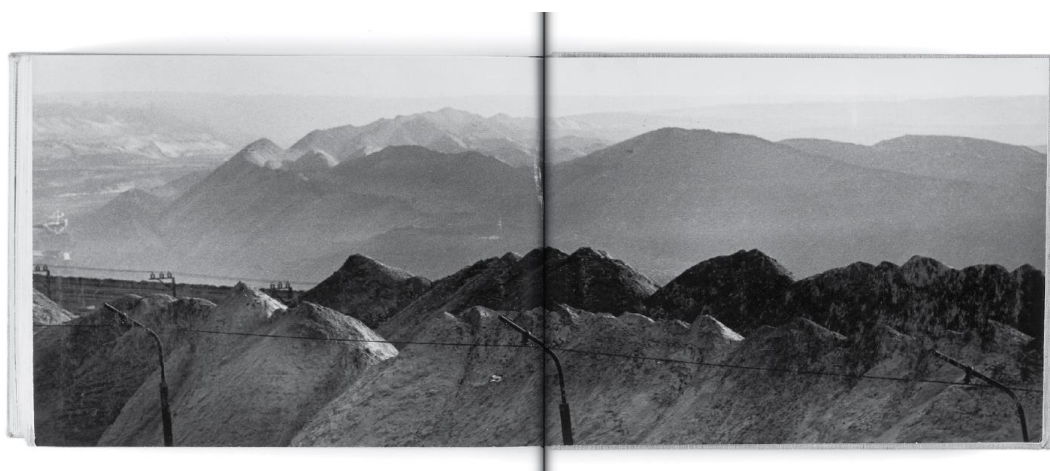


Figure 6.24. Nguyen the Thuc [n. d.] *Kohle unter Magdeborn* [Coal underneath Magdeborn]. [Photograph of open book. Two black-and-white photographs, full-bleed. No text. No pagination]. Archive of the HGB Leipzig, Germany.

What happened between Nguyen’s images and Eisler’s re-visiting of the area over 35 years later? What is it that we do not see in either Nguyen’s or Eisler’s images? The brown-coal mine in Magdeborn was expected to produce 250 million tons of coal, at about 40,000 tons per day. This is one day’s work that would be sufficient to heat 7,000 households for a year. But mining and energy conversion increased air pollution. Author Monika Maron, then living in the GDR, writes in her novel *Flugasche* [Flight of ashes] ((1981) (trans. 1986), p. 8): In summer it swirls through the air, dry black dust that flies into your eyes because you are a stranger

here, too. . . . Only strangers stand still and rub the soot from their eyes'.¹⁰⁶ These are the impressions of a fictitious journalist character created by Maron on visiting a city identified only as B. (but unmistakably Bitterfeld, near Leipzig). In the novel, the journalist had been commissioned to write an article about the city, a place synonymous with environmental pollution, its obsolete power station and the region's chemical industries. Published in West Germany in 1981, the novel was credited with being the first one written within the GDR to voice environmental critique. The Bitterfeld area industries, about thirty kilometres north of Leipzig, not only exuded black dust and oozed mercury; they became emblematic for the disillusion with socialist mismanagement. After the *Wende* [turning point], when the GDR had ceased to exist and production had stopped, Leipzig-based journalist Heidi Mühlenberg and photographer Michael Kurt (1991) travelled the Bitterfeld region and documented in writing and images the pollution of the environs by the chemical industry in *Panikblüte: Bitterfeld-Report* [Panic flowering: Bitterfeld report]. The book is a type of Vineta's archive.

6.5. Conclusion

Coal mining continues in Germany, in particular in Brandenburg in the former East and near Cologne in the former West. Such mining activity has become a familiar trope within the Anthropocene discussion, which relies on references to environmental destruction, resource extraction and climate change as a result of burning fossil fuels. In this context of the Anthropocene, fly-ash particles, a product of industrial combustion of oil and coal, are considered as 'index fossil'. These spheroidal carbonaceous fly ash particles could potentially act as globally synchronous stratigraphic markers in the Anthropocene (Rose, 2015; Swindles et al., 2015). If so, the coal and its fly ash or dust not only penetrate human corporeality as described by Maron, but also transcend histories, connecting the archives of the Earth to the archives of human lives.

106. Original text: Im Sommer wirbelt er durch die Luft, trockener, schwarzer Staub, der dir in die Augen fliegt, denn auch du bist fremd hier . . . wie ich. Nur die Fremden bleiben stehen und reiben sich den Ruß aus den Augen (Maron, 1981, 18).

A number of other recent projects have engaged Anthropocene concerns through photography, including Fotofest International 2016 in Houston, Texas, which was entitled *Changing circumstances: looking at the future of the planet* (Watriss, Evans, & Baldwin, 2016); and Glover and Rayner's (2014) photographic explorations of energy transitions as presented in *The metabolic landscape: perception, practice and the energy transition*. The latter project focuses on coal mining in the archipelago of Svalbard, Norway, and open-cast mining in Cottbus North, Brandenburg, Germany. With a thematic focus on climate change, the group exhibition entitled *The Ship: the art of climate change* (2006) at the Natural History Museum London, showed works by photographer Gautier Deblonde. These were taken in Russian mining sites in the Arctic Svalbard settlements Pyramiden, which was closed in 1998, and Barentsburg, established in 1932 and becoming the last Russian settlement in the Arctic (Buckland, MacGilp, & Parkinson, 2006, pp. 60–71). The nomadic, contemporary art biennial exhibition *Manifesta 9: the deep of the modern* brought into dialogue historical notions of the Belgian mining area around Genk, to document the memory of miners and the heritage of the site (Medina & Faga, 2012, p. 17). Cultural landscapes of mining are thus recorded, represented and re-invented in order to become human-made ecological landscapes for the twenty-first century.

Using the example of Magdeborn this chapter has connected the continual transformation of an environment into photographic frames that encompass the geological strata of the fossilized forest together with the effects of accelerated consumption and resource extraction of the post-war period. In the historic context of the Cold War, Nguyen's empathetic work also alluded to the environmental destruction in Vietnam through strategic warfare. In this chapter I have been as much concerned with the present landscape as with the past. My journeys around Leipzig opened up a retro-present, an effect accentuated through the photographic engagement with the landscape in Eisler's work. The perspective on the past relied on curatorial and, beyond Eisler's, multiple visual and literary perspectives, which make up an archive of the landscape. Read together a story emerges of a regional landscape that in itself holds an archive of geological transformations and human interventions to be retrieved and projected into the future. Together, the artists'

perspectives, my fieldwork and archival research suggested an expanded notion of the archive of human lives set within the archive layers of a landscape in the process of transformation, at once geomorphological, political and social.

7. Conclusion

In this thesis, I have presented accounts of art projects which engage with various aspects of environmental change, in some cases in a documentary mode, in other cases by means of what I have called re-performance of aspects of ecological field practice. Throughout, I have been concerned with artists' encounters with and uses of archives—documentary, material and embodied—through which the encounter with nature and the environment were mediated and facilitated. Exploring the works which resulted from these projects has involved probing the definitions and boundaries of different forms of knowledge, including those defining scientific and artistic fieldwork. In the process I have found the concept of montage to be especially productive. In this conclusion, I set the interpretations of each of the individual case studies in a wider, comparative context. I examined the role of the archive and its re-performance in the process of observing environmental change as well as the significance of montage, fieldwork and other artistic strategies in the age of the Anthropocene.

Central to the Anthropocene proposition is to reflect traceable global impact on the Earth's system. Accordingly, how do the artists' projects represent human presence and intervention in the environment? As demonstrated in the case studies, artistic methodologies can destabilize perceptions, ways of seeing and ways of doing. The art projects discussed drew on subjective and collaborative practices to visualize, to perform, to embody and to materialize observations of environmental change. This study is thus precisely not concerned with the use of art to simplify, disseminate or reduce complexities of environmental change to a wider audience—the kind of approach that might loosely be identified with the science communication of global environmental issues (as shown in Chapter 2). On the contrary, artistic engagements with environmental change are typically characterized by a concern with ambiguity and the need to retain a sense of complexity through, for example, their emphasis on scale, the material qualities of place and subjective experience.

The works of art discussed in this thesis have been studied through their respective historic and political contexts: they include a significant early work by Mark Dion, a collaborative current project by Chrystel Lebas as well as a little known

photographic work by Nguyen the Thuc about a local community, re-investigated by Christiane Eisler. Each of these projects was shaped by a variety of contexts, from the global to the local. Site-specificity was a characteristic of each of the projects, as expressed in their relationship to places and architectural spaces, institutional structures, social relations, people and their expertise. Moreover, structurally the case study projects favoured multiple points of view on nature and landscape, ecology and environment. The exploration of historic works through the archive and fieldwork and their re-performances montaged the present with the past. Here, my discussion of these works brings in curatorial perspectives in the age of the Anthropocene and suggests avenues for further research with regard to curating and exhibiting such works.

While none of the three main projects discussed in this thesis was conceived by the artist her- or himself as response to the Anthropocene proposition, the interpretations of them offered in this thesis have been framed within what I have called the 'age of the Anthropocene'. I have considered these works as situated within an epoch of thought in order to probe the Anthropocene proposition as a heuristic tool to understand aspects of the artworks discussed. This study has benefited from the multi-disciplinary debates over the Anthropocene within the natural and social sciences as well as the arts. These have presented an opportunity to consider the new methodologies offered by the multi-disciplinary space opened up to generate knowledge of environmental change. As the Anthropocene concept is divergent in meanings and applications, I have highlighted throughout this thesis two key tropes which are particularly relevant to the works examined: human-environment relations and scale, the latter referring to both temporal and spatial frames within which observation of environmental change takes place.

At the outset of the thesis I placed contemporary artists' practices in the intersection between the natural sciences and social science. This study is argued from within the context of environmental arts and humanities at large, bringing together not only natural and social sciences, but artistic practices including visual art, performance and literature. These intersections—more multiple than the binary rhetorical rubric of 'art and science' usually suggests—provided a useful point of departure to frame the artists' practices as thoughtful, creative and critical

contributors to the debates over the role of human agency within the natural world. While not approaching this study through the social science lens of audience engagement, I have examined some aspects of the political spaces which these works opened up for the public knowledge of and debate about environmental change. This political space for the concern of environmental change was introduced, firstly, through an emphasis on the diagrammatic and symbolic presentation of aspects of environmental change in the visual productions of scientists and artists which introduced Chapter 2; and secondly, through the discussion of these designs for the communication of complex environmental issues by conveying cultural associations, emotional investments and economic perspectives to broader expert and non-expert audiences. From within their respective disciplinary backgrounds and within different artistic media, these works illustrated common conceptual principles, such as montage (as in Frisch's novella *Man in the Holocene*), through which data about the environment is collated to seek out a pattern.

Throughout this thesis I have focussed on periods, such as the early 1970s, when our world was perceived as imperilled through human use of resources and population growth, or the early 1990s, when global environmental action became a political driving force, fuelling new rounds of environmental thinking and activism. These concerns were translated into icons and discourses about the environment, which in turn migrated into artistic arenas. Such migration of imagery, metaphors and concerns is reflected in the political and experimental practices of the individual artists' works: Nguyen's documentation of the sacrifice of the village of Magdeborn was effectively a critical commentary on state environmental politics; Dion made public scientific procedures of decontextualization and parcellation by performing these within the exhibition space; Lebas and collaborators evolved a new formation of observation at the interdisciplinary intersection of fine-art photography and botanical-ecological science.

The case study chapters examined some of the processes through which environmental changes became known to artists and their collaborators. Where relevant, I showed how these engagements included or were communicated to wider constituencies. Nguyen's engagements were explicitly activist—for him,

‘Photography is a societal activity’ (1978, p. 12)—whereas Dion’s methods were less instrumental. He did, though, seek to expose the social construction of science by performing naturalists’ practices in the public space of an exhibition. However, I have been less concerned with the reception of such works than with their framing and practice. I also examined the development of the curatorial propositions, as in the case of the *Arté Amazonas* and the *Freundschaftsantiqua* exhibitions; and the creation of a project structure through my own curatorial contribution in the collaboration between Lebas and the botanists of the Natural History Museum.

Engagement with archival forms and practices, as described in Chapter 3, is a familiar device in contemporary art. I have focussed on the ways in which selected artists have used and re-performed the archive in conjunction with fieldwork in the context of developing new understandings of environmental change. I have highlighted, in particular, the relevance of photography as a foundational medium, used for comparative environmental study. In order to accommodate the concept of human-environment relations, I conceived of the archive as an expanded formulation: an organizational space, be this within the architecture of a repository, the landscape, or the human body. I also describe the archive’s interpretation as a cultural metaphor for memory, mnemonics and for holding the potential for the production of knowledge.

My research supports the argument that environmental change is a shared concern around which the disciplines of the sciences, arts and humanities converge productively. I found that such an interdisciplinary space could be opened up through close study and re-performance of practices of observation, representation and aesthetics. In addressing a shared environmental concern, such as climate change, cross-disciplinary work such as highlighted in the study of Lebas’ collaborative work in the field can give rise to new forms of aesthetic, material and political practices that enable experimentation and sites of encounter (Gabrys & Yusoff, 2012). The themes of experimentation include, as discussed in Chapters 2 and 3, a re-thinking of species relations and an attuning of ourselves to the life worlds of other species as expressed through concepts of multinatures, natureculture and multi-species assemblages. The sites of encounter to prompt

such experimentation may be in the field—like the forest where human histories are entangled with trees (Springer & Turpin, 2017)—the spaces of the archive or the exhibition. An emphasis on multiple spaces of encounter and experimentation runs through the case studies presented in this thesis. In each case, I was concerned to relate environments, including people, non-human species or things (archives, landscapes, exhibition spaces), to the artists' engagements with(in) them. These engagements were relational, material and performative. The relationships forged with locally based people were often critical to the making of the environmentally concerned works. Dion thus relied on the expertise of entomologist Overal, on the local curatorial framework as well as on the exhibition visitors for whom he performed the procedures of archiving his chosen fragment of the tropical Amazonian rainforest. Lebas walked the landscape usually alone, sometimes together with a botanist. Yet her close interdisciplinary collaboration and her interaction with the archival photographs by Salisbury created productive disciplinary complexity in shaping her project. The images are technical images, each illustrating vegetation. The photographic images became active, material agents in the project and Lebas made the images more than mere technical illustrations. Through her photographs the artist created a heterogeneous 'now', a key trope of the Anthropocene, which embraced the past landscape as much as the present one. In Nguyen's project *Coal underneath Magdeborn*, the photographer evidenced how the materiality and agency of coal effected environmental change. Nguyen spent months developing friendships within the rural community affected by the brown-coal mine. His long-term photographic study is particularly striking because the environmental damage was becoming so dramatic at the time. His study acts almost as an overture for the political and environmental changes to come. Yet, his work at the time opened up a political space as a site of social encounter, which was re-opened during the *Freundschaftsantiqua* exhibition in 2014.

My analysis of each of these artworks gained depth from close study of the source materials used by the artists. Equally, experiencing the environments they engaged with, either with them or by myself, enabled me to consider the affective dimension of their work. The experiential aspect of each case study—be it delving

into the archives, walking the landscape or interviewing former miners—shaped and complemented my analytical approach and my understanding of the heterogeneous ‘now’. The experience of landscape and social environments was essential to appreciating how people can be affected by photographs as objects or the enquiring presence of an artist, or indeed myself as a curator. People interviewed, or those who had had in the past an encounter with Nguyen the photographer, were to some degree grateful for the respect they were shown, or even simply for not being forgotten.

Some of the phenomena of environmental change associated with the age of the Anthropocene are invisible, difficult to detect for the human observer or, as Chakrabarty expresses it, are at the limits of history, so that we experience the effects but not the whole phenomenon. The examples of artistic practice examined here present enquiries into the history and magnitude of human impacts upon landscapes and ecosystems, not by adopting planetary-scale methodologies but by making locally-based studies. To understand the concept of environmental change and timescales better, it is useful to think of permanence itself as problematic. Permanence is relative—persistence can be over a day, a year, a millennium. The changes that are perceived, those on which ‘acts of behaviour’ depend, are neither extremely slow nor extremely rapid. Human observers cannot easily perceive the gradual erosion of a mountain, but can detect the fall of a rock (Gibson, 1979, pp. 11–12). However, technologically mediated observation, such as the use of photography, combined with archival investigation, can enable slow changes to be observed. The observation of environmental change is conceptually dependent on our sense of time frames, as argued in Chakrabarty’s explorations of the notion of duration (see Chapter 2). The artists’ projects discussed in this thesis address perceptions and experiences of environmental change over various timescales. These can be re-embedded within the time frames suggested by the Anthropocene together with the spatial and temporal scale of human observations. Dion’s and Lebas’ engagements were performative and extended over periods of time. They made visible the scientific working processes, which re-perform scientific procedures to appropriate them for artistic methods and to explore scientific content. These artistic processes became a starting point to understand the

longitudinal study of environmental-change phenomena. Lebas observed phenological changes in re-visiting the landscape at different times of the year. Changes in flowering times can now be caused by anthropogenic climate change—thus a global phenomenon can express itself in changes to local seasonal cycles of plant life. Nguyen and Eisler connected the archives of the environment with human memory. But this experience is readily transferred into the present: brown-coal extraction is increasing again in the current *Energiewende* [energy transition] in Germany. Both re-performance and exhibition serve to make such history available and relevant to the present.

Consistent with Chakrabarty's arguments about time and duration in the Anthropocene, Nguyen's Magdeborn project shows us that empathy—the understanding of human experience in the here and now—is fundamental to the critique of human-induced environmental change. While it is difficult to imagine evolutionary timescales (for example the 60 million years for sub-tropical oleander trees to develop, to decompose and to become compressed into brown coal), it is easier to relate the day's production of the brown-coal mine and the time it takes to burn a day's yield of coal in order to heat the houses in a village in the winter. And it is easy to observe how a day's work of the open-cast mine transforms a landscape grown over decades. The anthropogenic transformations of the geological layers, from mining its depths to piling sediments up to 70 m high, now present the most important intervention in the Leipzig region, following the impact of early Neolithic land use about 7,300 years ago (Berkner et al., p. 40). Eisler's and Nguyen's bodies of work (as discussed in Chapter 6) thus contribute not only to the documentation of a fossil-fuelled history of civilization, but also to a longer history of human intervention in the landscape. Moreover, the architectural ruins of brick buildings represented in Eisler's photographs are also themselves in a process of decay. With the Anthropocene proposition in mind, these buildings are future fossils. Currently they are human-made structures that have become part of an ecological system in which humans have intervened through their labour. In the works installed within the exhibition the viewer can connect the history of human resource exploitation and its attendant myriad forms of human intervention in the region's geology and ecology.

In this study I have explored practices and techniques of observation as reflected in art projects concerned with environmental change. I have been particularly concerned with how such change is recognized and framed, within both scientific and artistic practice. In the case of Lebas' collaborative project (see Chapter 5), I developed the notion of the visual framework as a collaborative research methodology, enabling the combination of archival observation and observation in the field. Significantly, this visual framework itself evolved in the process of collaboration. In some ways, Dion's project (Chapter 4) started off similarly, in the sense that the artist's work was inspired by the field practice of a naturalist from a previous generation. However, the working up of the materials gleaned from the field turned into a more generic way of presenting the scientific working practice of sorting and organizing the finds. In this, Dion stepped away from merely re-enacting Beebe's work: he abstracted, re-performed and subverted it. Similarly, Eisler's work in Leipzig was far more than a re-iteration of her predecessor's concerns. In all these projects, the often collaborative process of artistic labour opened up an experimental space for the appropriation of historic materials, including archival sources and material collections, to be tested and transformed. Though the works emanate from a shared disciplinary space, the artists eventually did pursue a subjective, creative logic to develop their individual works.

In the Anthropocene context, humans are actors within the Earth system, provoking environmental change. How is the central role attributed to humans by the Anthropocene proposition reflected in the works by Dion and Lebas, both broadly set in an ecological context, or those by Nguyen and Eisler, broadly set in a political-economic context? In the Anthropocene literature, nature emerges as shaped and moulded both by intentional and unintentional human interventions—far from a passive backdrop, it is an essential part of human history. Lebas thus combines a version of ecological study with her own subjective approach to understanding landscape, inspired by notions of the sublime as enormous and dark. Yet in none of her photographic works are humans physically present: they are represented only through the traces they have left. The phenomenon of climate change is studied collaboratively by looking at sea level rise and its impact on

coastal plant habitats—though more work needs to be done to corroborate the initial observations. Here however are the effects, collaboratively researched and made visible in Lebas' works. The viewer of Lebas' photographs (and Salisbury's before her) sees a landscape void of people, elements of which, nonetheless, provide a commentary on the construction of nature through humans. In these montages images, texts and geographical data combine to evoke relations we have with plants and how we construct nature according to our needs: as a leisure landscape, economic plant use or as a foil to the human mind. The images then do not act to separate humans and plants, but present us with landscapes as shaped by human presence, mediated by the artist and her photographic, topological montages.

In Dion's re-performance of the work of his alter ego Beebe, he appears to revel in an early twentieth-century modern world and in the fantasies of doing heroic natural science, replete with the imperial imagery this conjures up. Doing science in Dion's work is a controlling pursuit: a quadrat of tropical life is stripped bare, its contents migrated into the modernist architecture of the exhibition space. Human representation is enacted through Dion's performance within the environment and the installation work. Scientific study itself becomes an interventionist anthropogenic act. Rubber plantations reshaped the economy of the rainforest in Pará, which in turn indirectly enabled the sale of some its animals—Beebe's reason for being in Brazil—to the zoological garden in New York. In their recent contribution to the Anthropocene debates, Lewis and Maslin (2015) refer to the Columbian exchange from the late fifteenth century onwards which made plant and animal species mobile for transatlantic trade. They see this period as a potential beginning of the Anthropocene. Seen through the lens of this Anthropocene, Beebe's acquisition and subsequent introduction of exotic birds into the New York metropolis is a small example of the ways in which animal species were made mobile through human intervention. A contemporary (and local) equivalent is the now typical sighting of green parakeets in London's parks. A bird species introduced by humans, but now proliferating outside of domestic bird cages, can be read as evidence of an accelerated mobility of species caused by humans: another sign of the Anthropocene proposition.

In both Nguyen's and Eisler's works, landscape and technological infrastructure intersect. The Anthropocene discussion has drawn attention to the uses of fossil-fuels, but also to the growth of infrastructure and urbanization. Together the artists' photographic works describe the fluidity between rural, industrial, post-industrial, urban and leisure spaces in which humans are interventionist in shaping landscapes for differing purposes. Eisler represents the post-industrial landscape that is now a leisure landscape in waiting—as yet void of users. Nguyen's photographs operate at the intersection of a rural landscape with the industrial landscape-to-be. In both bodies of work the landscape becomes infrastructure which intersects with the human body.

The projects discussed in this thesis continue to be presented in new forms. Dion co-curated the exhibition *Exploratory Works. Drawings from the Department of Tropical Research Field Expeditions*, which took place at the Drawing Center in New York from April to July 2017 (Dion, 2017). The exhibition included two of Dion's installations, one of a marine-, one of a terrestrial-studies laboratory. From December 2016 to March 2017, Lebas had her solo exhibition *Regarding Nature* at Huis Marseille Photography Museum in Amsterdam (Lebas, 2016). And Eisler exhibited photographs from the 1980s Leipzig's punk band *Wutanfall* [Fit of rage] at the galerie KUB, Leipzig from April to May 2017. The continuing vitality and proliferation of such exhibitionary practices raises a wider question concerning the ethos and format of exhibitions generally associated with the Anthropocene proposition. Exhibition production today, as in the past, is a social process that involves many institutions and actors. Together they create a specific cultural, even ideological, field, enacting curatorial ideas. For example, the so-called 'Brain' display of *documenta (13)*, curated by Carolyn Christov-Bakargiev in 2012, was a contemporary cabinet of curiosities in which margins of categories were probed. In this small display, designated with a corporeal metaphor, the conceptual strands of what was a multi-venue temporary exhibition were united. Objects on display included stone miniature sculptures from Central Asia, the *Bactrian Princesses*, dating from about 2000 B.C., photographs of Adolf Hitler's bathtub taken by Lee Miller on 30 April 1945, and Vandy Rattana's recent photographs of bomb-crater ponds in Vietnam. These objects exemplified different timescales, human creativity,

the destructive interventions of humans and the regeneration of an ecosystem. Tellingly, the accompanying exhibition publication includes an essay by Jill Bennett, 'Living in the Anthropocene' (2012). Bennett suggests that ecological thought draws art and museum objects back into an external life-world. Curatorial practice inspired broadly by ecology and the metaphor of interconnectedness it evokes enables new perceptions of objects across histories in new exhibition spaces.

Within this more complex and extended time frame of understanding, what is 'our sense of the now' and our experience of the past? In concluding this thesis, I would like to take an imaginary leap backwards, prompted by the question in one of Nguyen's photographs: 'How do I imagine the year 2000 to be?' (Fig. 7.1.). Revisiting this question in 2017 in fact requires both a forward and a backward move. It was originally a forward move for the teacher and the student, looking attentively into the classroom while anticipating a future—though their bodies were slack and apprehensive in awareness of imminent change. Yet for us, the year 2000 is a backward leap. In Nguyen's photograph the chalk text on the blackboard suggests three categories—economic, social, personal—to think about the future. The Anthropocene term urges us to think foremost about human-induced changes and their consequences. Considering the Anthropocene proposition and art together provides a richer field of enquiry to ask new questions about our relationship with nature through environmentally engaged artists' works, collaborations, curatorial processes, exhibitions and public formats.

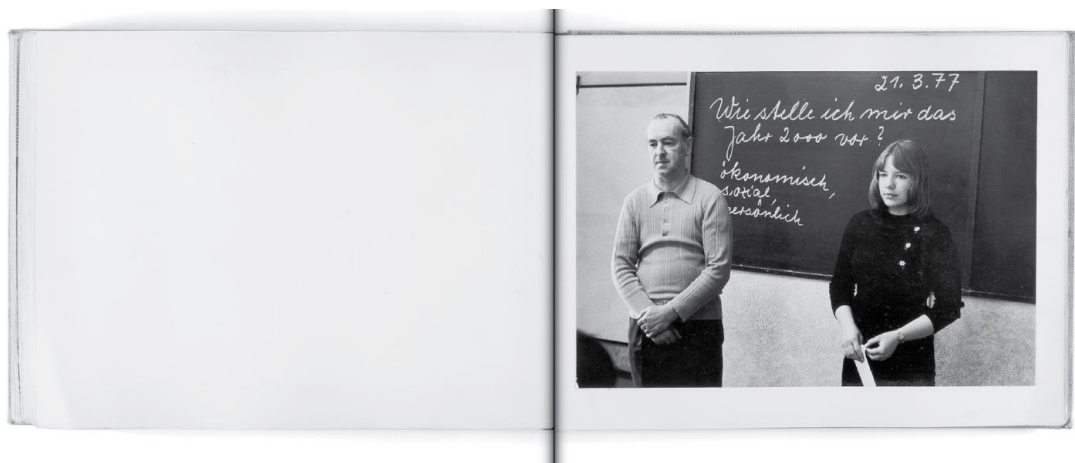


Figure 7.1. Nguyen the Thuc [n. d.] *Kohle unter Magdeborn* [Coal underneath Magdeborn]. [Photograph of open book. One black-and-white photograph on the right page. No text. No pagination]. Archive of the HGB Leipzig, Germany.

Appendix I

Large-format reproductions of selected images

Figure 2.1.

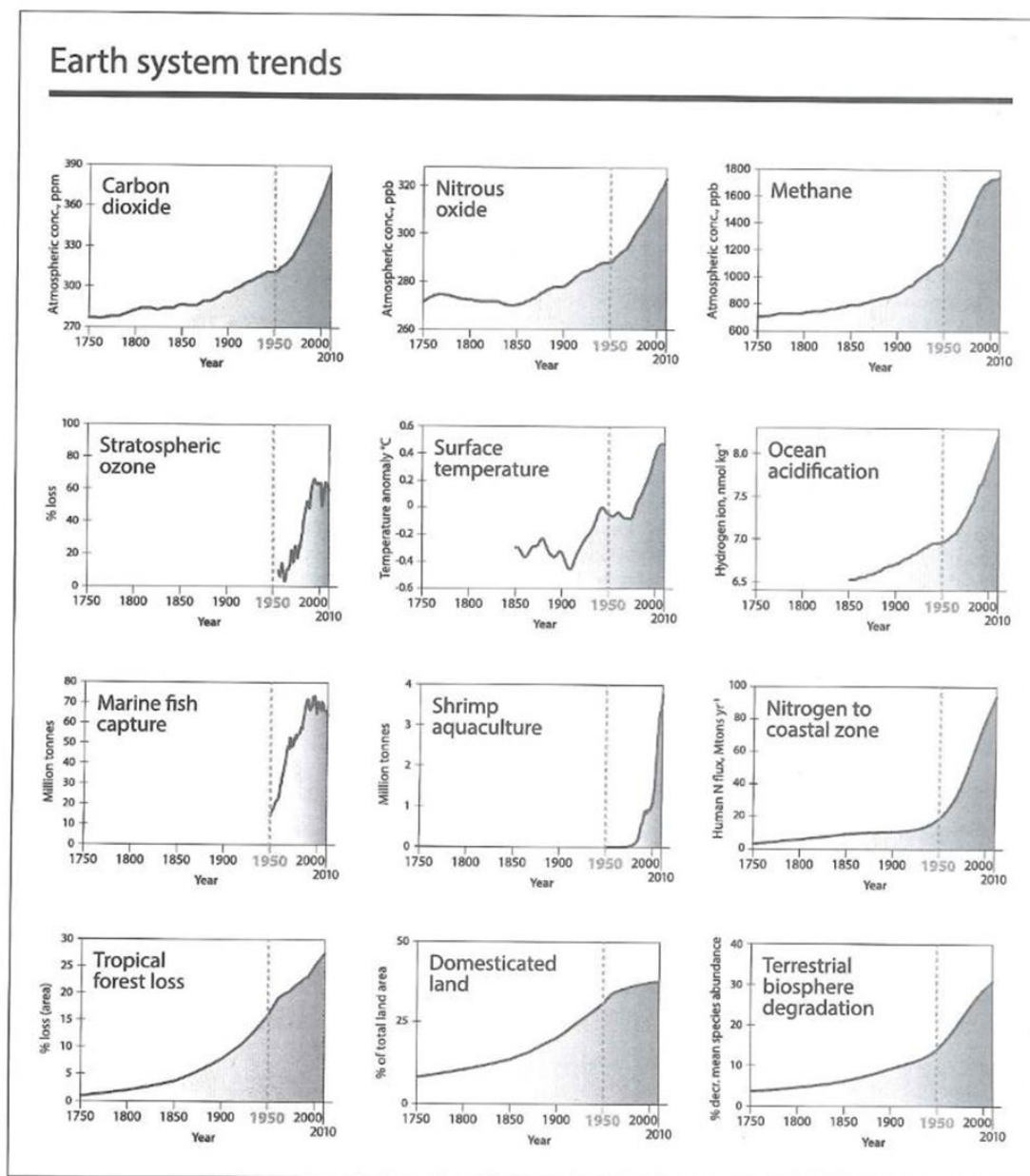


Figure 5.1.



Figure 5.4.



Figure 5.11.



Revisiting - Rothiemurchus fen view - Plate n°1241
 Aviemore, Rothiemurchus, August 2014
 57°9.555' N 3°47.505' W

'When vegetation colonises a pond-floor or river-bed, the freedom of water-movement is checked and, as a result, the rate of deposition of water-borne particles is accelerated.

These accumulate round the submerged plants with a consequent rise in the level of the bed.

The overlying water thus becomes shallower, so that other species can grow and what was once free water becomes a marsh. The swamp-flora is always encroaching in this manner upon the aquatic vegetation, and in a similar way the reed-swamp, as it becomes more and more dense and the level of the floor rises, is invaded by the marsh-flora. In East Anglia large areas are covered by such dense reed-swamps in which the predominating plants are Grasses and Sedges, e.g. Reed (*Phragmites*), Blue Moorgrass (*Molinia*), Reed Canary-grass (*Phalaris arundinacea*), Bog-rush (*Schoenus*), Twig-rush (*Cladium*), etc. A certain amount of peat is formed in such situations, but this contains a large proportion of mineral substance and the soil-water, unlike that of moorlands (cf. p.536), is often alkaline.

This type of community is known as a *fen*. Other characteristic plants are *Lychnis flos-cuculi*, *Valeriana officinalis*, *Ranunculus lingua*, *Thalictrum flavum*, *Ulmaria palustris*, etc.

In this dense fen-community there is a stratification comparable to that in woodlands. (...)

Eventually the soil built up by the accumulation of mineral and organic material may become colonised by trees, such as Alder (*Alnus*), Willow, *Rhamnus catharticus*, etc., and a fen-wood or *carr* is produced, which may eventually pass into Oak-wood. We have here again a *succession*, in which one type of plant-community replaces another in a definite sequence, leading to a comparatively stable climax-community, the character of which is largely determined by the prevalent climatic conditions.'

F.E. Fritsch & E.J. Salisbury (1938). *Plant form and function*, pp.554-555

Figure 5.12.



Figure 5.13.



Figure 5.14.

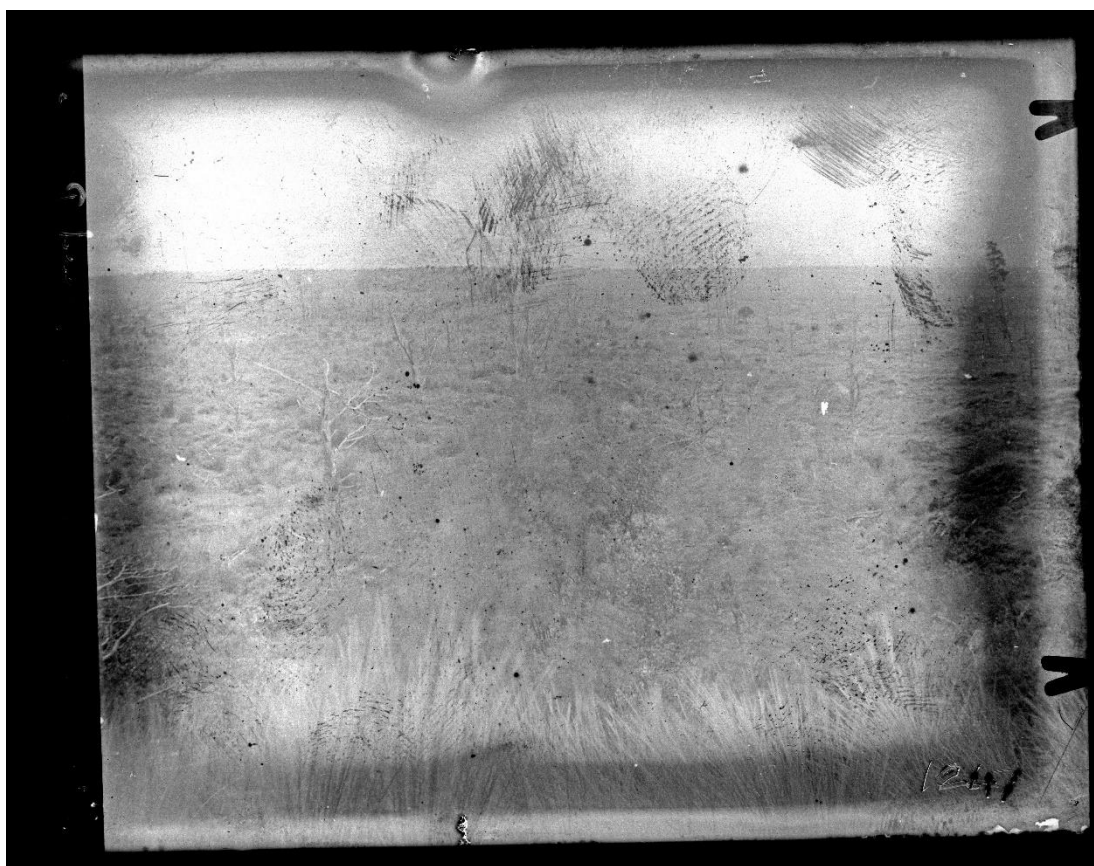


Figure 6.16.



Figure 6.20.

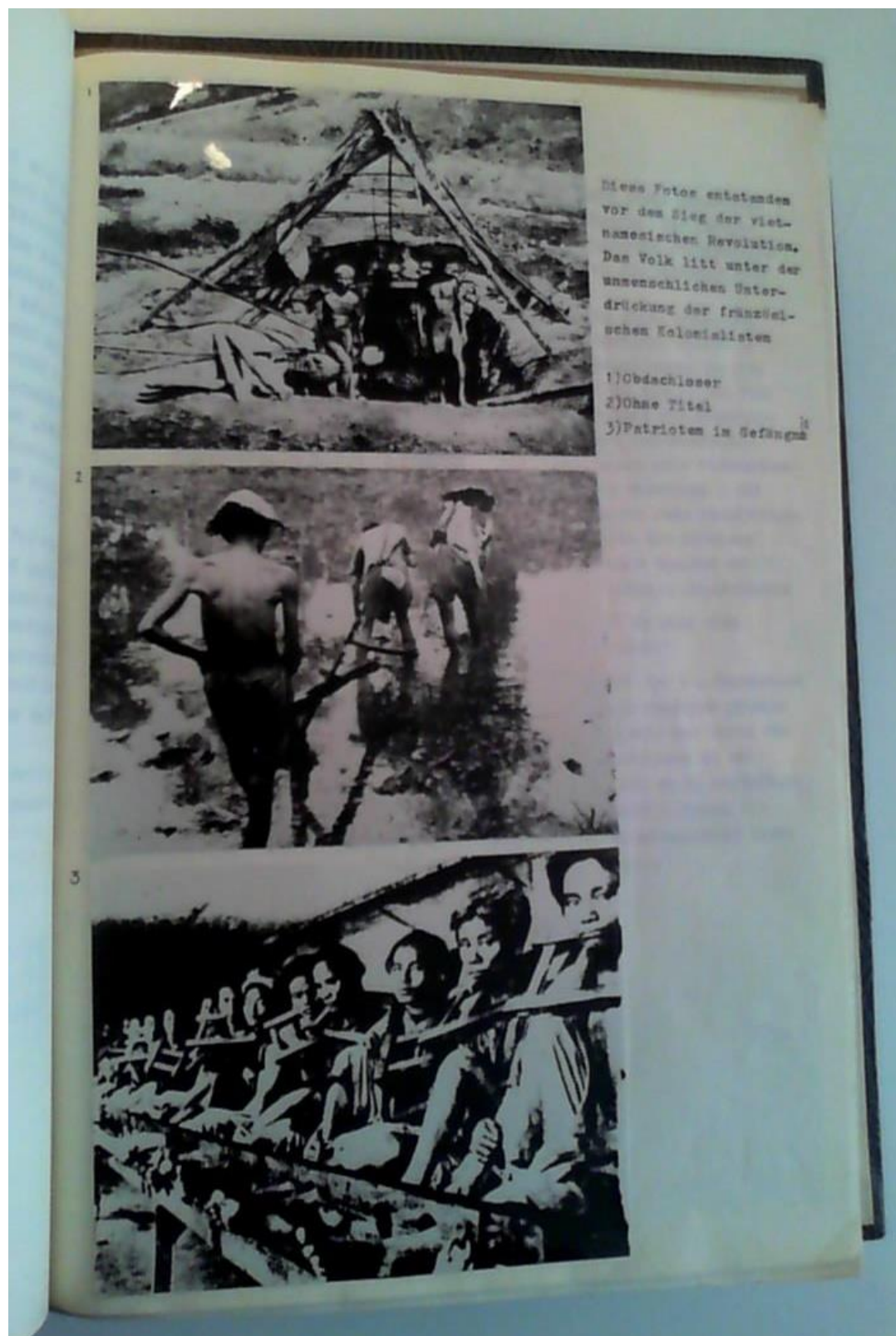


Figure 6.21.

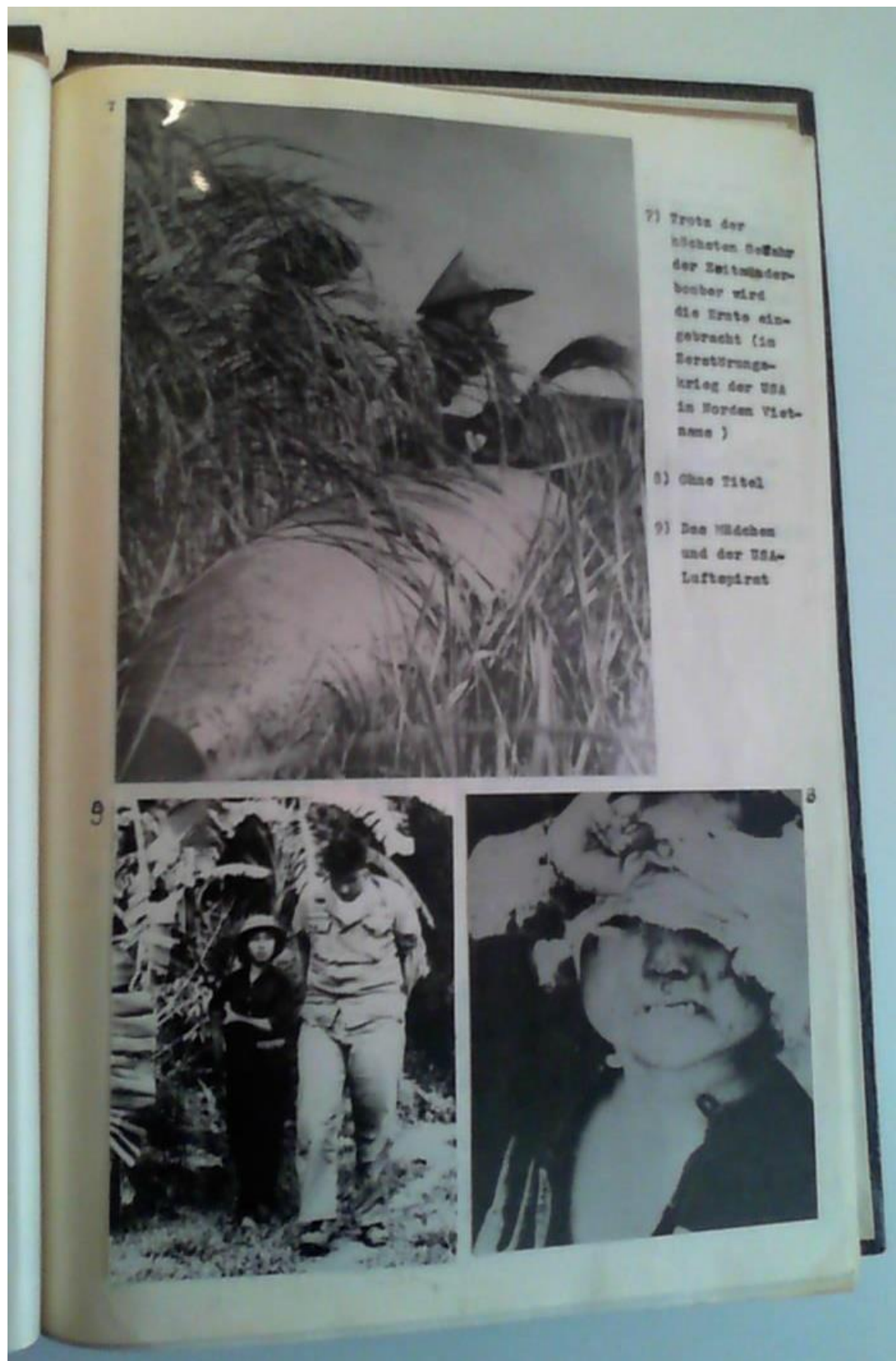
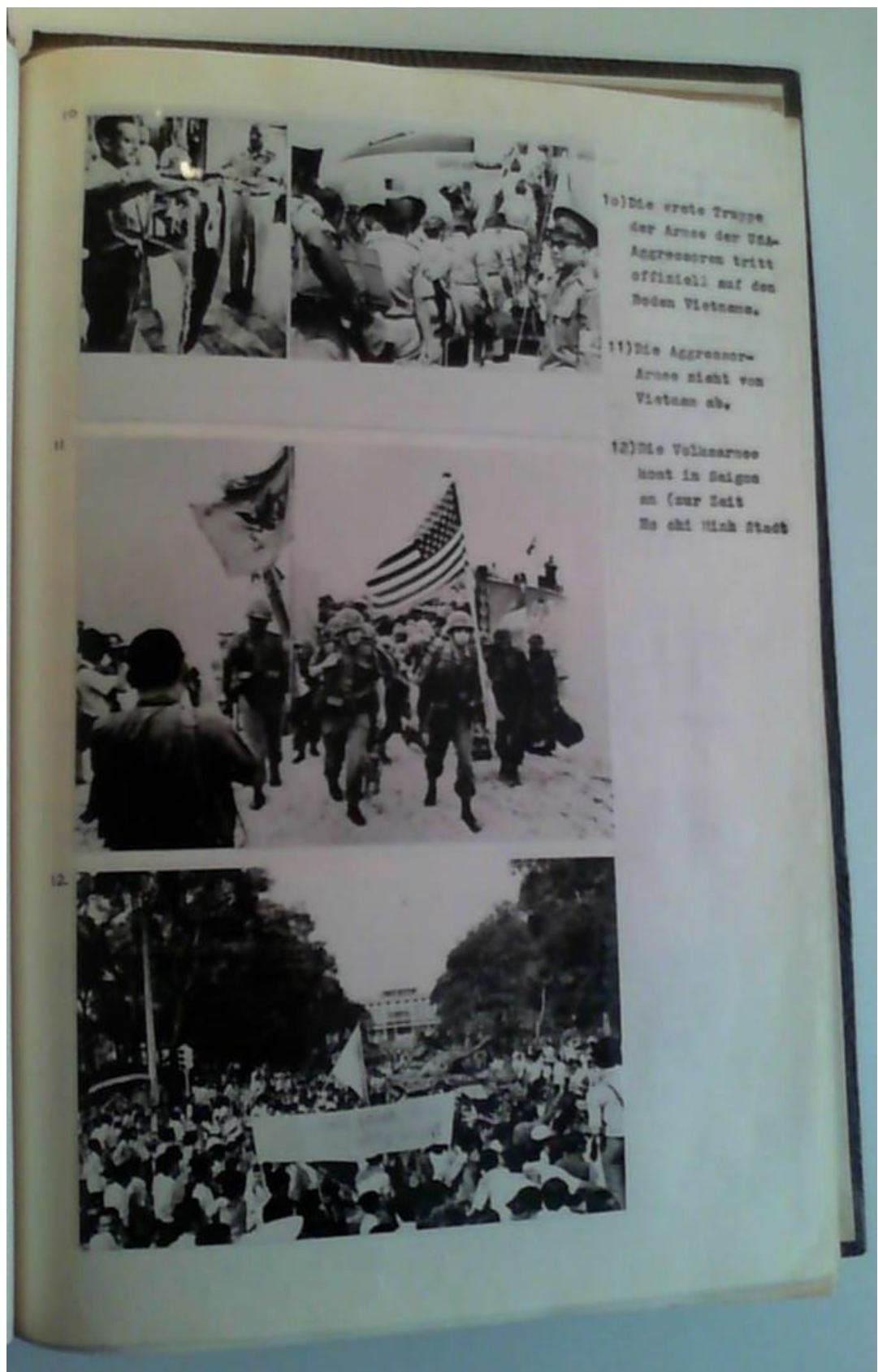


Figure 6.22.



Appendix II

Works of art

Chapter 2

Mark Dion *New curiosities for the green vault. Unicorn horn* (2014). [Sculpture].

Chapter 3

Ackroyd & Harvey *Seeing red ... overdrawn* (2016). [Installation].

David Brooks *An archive within an archive within an archive* (2014).

David Brooks *Repositioned core* (2014). [Installation].

Mikhail Karikis *Children of unquiet* (2014). [Video stills].

Chapter 4

Mark Dion *A yard of jungle* (1992). [Installation, diverse objects].

Chapter 5

Chrystel Lebas *Re-visiting Pinus silvestris [illeg.] plate n°1245, Aviemore, Rothiemurchus, October 2011 57°8.713' N 3°50.290' W* [Photograph].

Chrystel Lebas *The wandering dunes* [Four channel video installation with soundscape, autoloop].

Chapter 6

Christiane Eisler *Uferlos* [Borderless] (2013–2014). [Four colour photographs, each 50 x 70 cm]

Christiane Eisler *Heimatlos* [Homeless] (2012). [Three colour photographs, each 50 x 70 cm, one colour photograph 70 x 50 cm].

Christiane Eisler *Arbeitslos* [Unemployed] (2013–2015). [Four black-and-white photographs, each 50 x 70 cm, one panorama black-and-white photograph, 50 x 150 cm].

Nguyen the Thuc *Kohle unter Magdeborn* [Coal underneath Magdeborn]. (ca. 1976).
[Photographic album with black-and-white and colour photographs, 22.5 x 29 cm,
cloth-bound, photographs of varying sizes].

Nguyen the Thuc *Kohle unter Magdeborn* [Coal beneath Magdeborn]. (ca. 1976).
[18 black and white photographs, each 20 x 30 cm, reprints for exhibition].

Appendix III

Interviews

Chapter 4

Interviewee(s)	Interview date	Interview location
Mark Dion, artist	30 May 2015	Artist's flat, New York
Mark Dion	4 June 2015	Artist's flat, New York
Mark Dion	27 June 2016	By correspondence
Mark Dion	24 October 2015	By correspondence
Nikolaus Nessler, co-curator <i>Arté Amazonas</i>	10 July 2016	Telephone conversation
Nikolaus Nessler	24 July 2016	Telephone conversation
William Overal, entomologist, contributor to <i>Arté Amazonas</i>	14 September 2015	By correspondence

Chapter 5

Interviewee(s)	Interview date	Interview location
Kath Castillo, botanist	17 December 2014	Natural History Museum, Angela Marmont Centre
Chrystel Lebas, artist	24 November 2014	Artist's studio, London
Mark Spencer, botanist	17 December 2014	Natural History Museum, Angela Marmont Centre
Mark Spencer	15 May 2015	Natural History Museum, Angela Marmont Centre lobby
Kath Castillo, Chrystel Lebas, Mark Spencer	17 December 2014	Natural History Museum, Angela Marmont Centre

Chapter 6

Interviewee(s)	Interview date	Interview location
Julia Blume, co-curator, <i>Freundschaftsantiqua</i>	16 April 2015	Hochschule für Grafik und Buchkunst Leipzig
Christiane Eisler, artist	13 and 14 April 2015	Artist's flat, Leipzig
Reiner Krah, worked at BKK Espenhain, from Magdeborn	15 April 2015	Reiner Krah's home, near Leipzig
Gerald Riedel, worked at BKK Espenhain, from Magdeborn	17 April 2015	Valdivia restaurant on the former mining site

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